LITTELL'S LIVING AGE.

Fifth Series, Volume XX. } No. 1739.—October 13, 1877. { From Beginning, Vol. CXXXV.

CONTENTS.

I. The Colors of Animals and Plants,	*Macmillan's Magazine*,	67
II. Doris Barugh. A Yorkshire Story. By the author of "Patty,".	*Good Words*,	87
III. Samuel Warren, ...	*Blackwood's Magazine*,	104
IV. French Chateaux of the Renaissance. (1460–1547.) By Mrs. Mark Pattison, .	*Contemporary Review*,	111
V. Green Pastures and Piccadilly. By William Black. Part XXXII., . . .	*Harper's Bazar*,	122
VI. Interesting People, ...	*Saturday Review*,	125
VII. The Chemical Composition of the Flesh of the Halibut, ...	*American Journal of Science*,	128

POETRY.

In Memoriam, ... 66 | September, ... 66

PUBLISHED EVERY SATURDAY BY

LITTELL & GAY, BOSTON.

TERMS OF SUBSCRIPTION.

For Eight Dollars, *remitted directly to the Publishers*, the Living Age will be punctually forwarded for a year, *free of postage*.

An extra copy of The Living Age is sent gratis to any one getting up a club of Five New Subscribers.

Remittances should be made by bank draft or check, or by post-office money-order, if possible. If neither of these can be procured, the money should be sent in a registered letter. All postmasters are obliged to register letters when requested to do so. Drafts, checks and money-orders should be made payable to the order of Littell & Gay.

Single Numbers of The Living Age, 18 cents.

IN MEMORIAM.

WAR's horror at its worst, the seeds of change
Darkly at work for nations, churches, kings,
What is there in an old man's death so strange
To give it rank among eventful things?

Nor king is he, nor president, nor pope;
He holds nor sword of strength, nor keys of power;
Hangs on his life nor world-wide fear nor hope;
If he was e'er "the man," long past his hour.

Yet but one statesman's exit, and no king's,
Could give such theme for thought, and tongue, and pen,
As this small eighty-years-old bourgeois' brings
The lightest hearts, and quickest wits, of men.

France, save the fraction that flings filth for flowers,
Utters one voice of sorrowing regret
O'er him who gave her his long manhood's powers,
Whom death, at eighty, found her soldier yet,

Unbowed beneath the burden of fourscore,
Donning his armor for the self-same fight
In which, a stripling, erst the flag he bore
Of might enthroned in power, with law-based right.

What wonder France should sorrow so for him
Who scorned what she scorns, held what she holds dear;
Whose quick sense saw no truth, while it was dim,
Content to rest in half-truth, while 'twas clear.

The sharpest-shaping, keenest-biting wit
That kept alive the memory of Voltaire;
Most French of Frenchmen, apt with phrase to fit
The unspoken sentiment that filled the air,

So giving it the concrete life that moulds
A party's purpose, people's mood, to act;
Finding, at need, the wanted word that holds
A nation's fancy, till it turns to fact.

Against such gifts, what was it that his pen
At times postponed harsh truth to happy phrase?
If, when he ministered as chief of men,
The statesman grasped at times the meaner praise

Of winning cleverly, than on the square?
The jury he appealed to were his peers;
His history was their legend, written fair;
His spice of false won for his truth their ears.

Nor only France he glassed, in fleck and flaw;
From youth he was the soldier-sworn of right
Set in the adamantine bounds of law,
For that was first, would have been last, to fight.

And therefore France, once more upon the verge
Of that sad war 'tis still her fate to wage,
'Twixt might with power, right with but law to urge,
Took him for champion even in his age.

Prone as she is good service to forget,
And fickle in her favor, as they say,
Still in her heart she bore the man who set
Weakness aside, and cast old age away,

Posting the world to raise her up a friend;
Then, harder task, subdued his wrath and shame,
His conquered country's interest to defend,
And melt her conquerors to milder frame.

Who, when concession's utmost boon was wrung,
Despaired not of his country, stricken low,
Beaten and bleeding, but her nerves re-strung
In tune to his, weak wailing to forego;

With hardness to endure, war's debt to pay,
And peace's work with heart and hope set to,
To earn the ransom she had wealth to pay,
And envy of her conquerors thereto.

For this she mourns him — lays upon his bier
Tribute of common grief, the civic crown;
And holds this little bourgeois, henceforth, dear,
Among her great ones to the dead gone down.

Punch.

SEPTEMBER.

THERE sounds a rustling in the standing corn;
There hangs a bright-cheeked apple on the bough;
And later lingers now the tardy morn,
And evening shadows gather sooner now.

One crimson branch flames 'mid the maple wood;
One red leaf hides amid the woodbine's green;
And clean-raked fields lie bare, where lately stood
The tawny grain amid the summer scene.

Blue gentians show 'mid meadow grasses sear,
And, from the stubble, shrill the crickets sing:
A requiescat o'er the falling year
All sounds seem sadly chorusing.

New York Evening Mail.

From Macmillan's Magazine.

THE COLORS OF ANIMALS AND PLANTS.

I.

THE COLORS OF ANIMALS.

THERE is probably no one quality of natural objects, from which we derive so much pure and intellectual enjoyment as from their colors. The "heavenly" blue of the firmament, the glowing tints of sunset, the exquisite purity of the snowy mountains, and the endless shades of green presented by the verdure-clad surface of the earth, are a never-failing source of pleasure to all who enjoy the inestimable gift of sight. Yet these constitute, as it were, but the frame and background of a marvellous and ever-changing picture. In contrast with these broad and soothing tints, we have presented to us in the vegetable and animal worlds, an infinite variety of objects adorned with the most beautiful and most varied hues. Flowers, insects, and birds, are the organisms most generally ornamented in this way; and their symmetry of form, their variety of structure, and the lavish abundance with which they clothe and enliven the earth, cause them to be objects of universal admiration. The relation of this wealth of color to our mental and moral nature is indisputable. The child and the savage alike admire the gay tints of flower, bird, and insect; while to many of us their contemplation brings a solace and enjoyment which is both intellectually and morally beneficial. It can then hardly excite surprise that this relation was long thought to afford a sufficient explanation of the phenomena of color in nature; and although the fact that

> Full many a flower is born to blush unseen,
> And waste its sweetness on the desert air

might seem to throw some doubt on the sufficiency of the explanation, the answer was easy, — that in the progress of discovery, man would, sooner or later, find out and enjoy every beauty that the hidden recesses of the earth have in store for him. This theory received great support, from the difficulty of conceiving any other use or meaning in the colors with which so many natural objects are adorned. Why should the homely gorse be clothed in golden raiment, and the prickly cactus be adorned with crimson bells? Why should our fields be gay with buttercups, and the heather-clad mountains be clad in purple robes? Why should every land produce its own peculiar floral gems, and the Alpine rocks glow with beauty, if not for the contemplation and enjoyment of man? What could be the use to the butterfly of its gaily-painted wings, or to the humming-bird of its jewelled breast, except to add the final touches to a world-picture, calculated at once to please and to refine mankind? And even now, with all our recently acquired knowledge of this subject, who shall say that these old-world views were not intrinsically and fundamentally sound; and that, although we may know that color has "uses" in nature that we little dreamt of, yet the relation of those colors to our senses and emotions may be another, and perhaps more important use which they subserve in the great system of the universe?

We now propose to lay before our readers a general account of the more recent discoveries on this interesting subject; and in doing so, it will be necessary first to give an outline of the more important facts as to the colors of organized beings; then to point out the cases in which it has been shown that color is of use; and lastly, to endeavor to throw some light on its nature, and the general laws of its development.

Among naturalists, color was long thought to be of little import, and to be quite untrustworthy as a specific character. The numerous cases of variability of color led to this view. The occurrence of white blackbirds, white peacocks, and black leopards; of white bluebells, and of white, blue, or pink milkworts, led to the belief that color was essentially unstable, that it could therefore be of little or no importance, and belonged to quite a different class of characters from form or structure. But it now begins to be perceived that these cases, though tolerably numerous, are, after all, exceptional; and that color, as a rule, is a constant character. The great majority of species, both of animals and plants, are each distinguished by peculiar tints which vary very little, while

the minutest markings are often constant in thousands or millions of individuals. All our field buttercups are invariably yellow, and our poppies red, while many of our butterflies and birds resemble each other in every spot and streak of color through thousands of individuals. We also find that color is constant in whole genera and other groups of species. The genistas are all yellow, the erythrinas all red, many genera of carabidæ are entirely black, whole families of birds — as the dendrocolaptidæ — are brown, while among butterflies the numerous species of lycæna are all more or less blue, those of pontia white, and those of callidryas yellow. An extensive survey of the organic world thus leads us to the conclusion that color is by no means so unimportant or inconstant a character as at first sight it appears to be; and the more we examine it the more convinced we shall become that it must serve some purpose in nature, and that besides charming us by its diversity and beauty it must be well worthy of our attentive study, and have many secrets to unfold to us.

In order to group the great variety of facts relating to the colors of the organic world in some intelligible way, it will be best to consider how far the chief theories already proposed will account for them. One of the most obvious and most popular of these theories, and one which is still held, in part at least, by many eminent naturalists, is, that color is due to some direct action of the heat and light of the sun, thus at once accounting for the great number of brilliant birds, insects, and flowers, which are found between the tropics. But here we must ask whether it is really the fact that color is more developed in tropical than in temperate climates, in proportion to the whole number of species; and even if we find this to be so, we have to inquire whether there are not so many and such striking exceptions to the rule, as to indicate some other causes at work than the direct influence of solar light and heat. As this is a most important question, we must go into it somewhat fully.

It is undoubtedly the case that there are an immensely greater number of richly-colored birds and insects in tropical than in temperate and cold countries; but it is by no means so certain that the *proportion* of colored to obscure species is much or any greater. Naturalists and collectors well know that the majority of tropical birds are dull-colored; and there are whole families, comprising hundreds of species, not one of which exhibits a particle of bright color. Such are the timaliidæ of the eastern and the dendrocolaptidæ of the western hemispheres. Again, many groups of birds, which are universally distributed, are no more adorned with color in the tropical than in the temperate zone; such are thrushes, wrens, goat-suckers, hawks, grouse, plovers, and snipe; and if tropical light and heat have any direct coloring effect, it is certainly most extraordinary that in groups so varied in form, structure, and habits as those just mentioned, the tropical should be in no wise distinguished in this respect from the temperate species. The brilliant tropical birds mostly belong to groups which are wholly or almost wholly tropical — as the chatterers, toucans, trogons, and pittas; but as there are perhaps an equal number of groups which are wholly dull-colored, while others contain dull and bright colored species in nearly equal proportions, the evidence is by no means strong that tropical light or heat has anything to do with the matter. But there are also groups in which the cold and temperate zones produce finer-colored species than the tropics. Thus the Arctic ducks and divers are handsomer than those of the tropical zone, while the king-duck of temperate America and the mandarin-duck of N. China are the most beautifully colored of the whole family. In the pheasant family we have the gorgeous gold and silver pheasants in N. China and Mongolia; and the superb Impeyan pheasant in the temperate N.W. Himalayas, as against the peacocks and fire-backed pheasants of tropical Asia. Then we have the curious fact that most of the bright-colored birds of the tropics are denizens of the forests, where they are shaded from the direct light of the sun, and that they abound near the equator where cloudy skies are very prevalent; while, on the other hand, places where light

and heat are at a maximum have often dull-colored birds. Such are the Sahara and other deserts, where almost all the living things are sand-colored; but the most curious case is that of the Galapagos Islands, situated under the equator, and not far from South America, where the most gorgeous colors abound, but which are yet characterized by prevailing dull and sombre tints in birds, insects, and flowers, so that they reminded Mr. Darwin of the cold and barren plains of Patagonia. Insects are wonderfully brilliant in tropical countries generally, and any one looking over a collection of South American or Malayan butterflies would scout the idea of their being no more gaily colored than the average of European species, and in this they would be undoubtedly right. But on examination we should find that all the more brilliantly-colored groups were exclusively tropical, and that, where a genus has a wide range, there is little difference in coloration between the species of cold and warm countries. Thus the European vanessides, including the beautiful "peacock," "Camberwell beauty," and "red admiral" butterflies, are quite up to the average of tropical beauty in the same group, and the remark will equally apply to the little "blues" and "coppers;" while the Alpine "Apollo" butterflies have a delicate beauty that can hardly be surpassed. In other insects, which are less directly dependent on climate and vegetation, we find even greater anomalies. In the immense family of the carabidæ or predaceous ground-beetles, the northern forms fully equal, if they do not surpass, all that the tropics can produce. Everywhere, too, in hot countries, there are thousands of obscure species of insects which, if they were all collected, would not improbably bring down the average of color to much about the same level as that of temperate zones.

But it is when we come to the vegetable world that the greatest misconception on this subject prevails. In abundance and variety of floral color the tropics are almost universally believed to be pre-eminent, not only absolutely, but relatively to the whole mass of vegetation and the total number of species. Twelve years of observation among the vegetation of the eastern and western tropics has, however, convinced me that this notion is entirely erroneous, and that, in proportion to the whole number of species of plants, those having gaily-colored flowers are actually more abundant in the temperate zones than between the tropics. This will be found to be not so extravagant an assertion as it may at first appear, if we consider how many of the choicest adornments of our greenhouses and flower-shows are really temperate as opposed to tropical plants. The masses of color produced by our rhododendrons, azaleas, and camellias, our pelargoniums, calceolarias, and cinerarias,—all strictly temperate plants—can certainly not be surpassed, if they can be equalled, by any productions of the tropics.* But we may go further, and say that the hardy plants of our cold temperate zone equal, if they do not surpass, the productions of the tropics. Let us only remember such gorgeous tribes of flowers as the roses, peonies, hollyhocks, and antirrhinums, the laburnum, wistaria, and lilac; the lilies, irises, and tulips, the hyacinths, anemones, gentians, and poppies, and even our humble gorse, broom, and heather; and we may defy any tropical country to produce masses of floral color in greater abundance and variety. It may be true that individual tropical shrubs and

* It may be objected that most of the plants named are choice cultivated *varieties*, far surpassing in color the original stock, while the tropical plants are mostly unvaried wild *species*. But this does not really much affect the question at issue. For our florists' gorgeous varieties have all been produced under the influence of our cloudy skies, and with even a still further deficiency of light, owing to the necessity of protecting them under glass from our sudden changes of temperature; so that they are themselves an additional proof that tropical light and heat are not needed for the production of intense and varied color. Another important consideration is, that these cultivated *varieties* in many cases displace a number of wild *species* which are hardly, if at all, cultivated. Thus there are scores of *species* of wild hollyhocks varying in color almost as much as the cultivated varieties, and the same may be said of the pentstemons, rhododendrons, and many other flowers; and if these were all brought together in well-grown specimens, they would produce a grand effect. But it is far easier, and more profitable, for our nurserymen to grow *varieties* of one or two species, which all require a very similar culture, rather than fifty distinct *species*, most of which would require special treatment; the result being that the varied beauty of the temperate flora is even now hardly known, except to botanists and to a few amateurs.

flowers do surpass everything in the rest of the world, but that is to be expected, because the tropical zone comprises a much greater land-area than the two temperate zones, while, owing to its more favorable climate, it produces a still larger proportion of species of plants, and a great number of peculiar natural orders.

Direct observation in tropical forests, plains, and mountains, fully supports this view. Occasionally we are startled by some gorgeous mass of color, but as a rule we gaze upon an endless expanse of green foliage, only here and there enlivened by not very conspicuous flowers. Even the orchids, whose gorgeous blossoms adorn our stoves, form no exception to this rule. It is only in favored spots that we find them in abundance; the species with small and inconspicuous flowers greatly preponderate; and the flowering season of each kind being of short duration, they rarely produce any marked effect of color amid the vast masses of foliage which surround them. An experienced collector in the eastern tropics once told me, that although a single mountain in Java had produced three hundred species of orchideæ, only about two per cent. of the whole were sufficiently ornamental or showy to be worth sending home as a commercial speculation. The Alpine meadows and rock-slopes, the open plains of the Cape of Good Hope or of Australia, and the flower-prairies of North America, offer an amount and variety of floral color which can certainly not be surpassed, even if it can be equalled, between the tropics.

It appears, therefore, that we may dismiss the theory that the development of color in nature is directly dependent on, and in any way proportioned to the amount of solar heat and light, as entirely unsupported by facts. Strange to say, however, there are some rare and little-known phenomena, which prove that, in exceptional cases, light does directly affect the colors of natural objects, and it will be as well to consider these before passing on to other matters.

A few years ago, Mr. T. W. Wood called attention to the curious changes in the color of the chrysalis of the small cabbage butterfly (*Pontia rapæ*) when the caterpillars were confined in boxes lined with different tints. Thus in black boxes they were very dark, in white boxes nearly white; and he further showed that similar changes occurred in a state of nature, chrysalises fixed against a whitewashed wall being nearly white, against a red wall reddish, against a pitched paling nearly black. It has also been observed that the cocoon of the emperor moth is either white or brown, according to the surrounding colors. But the most extraordinary example of this kind of change is that furnished by the chrysalis of an African butterfly (*Papilio Nireus*), observed at the Cape by Mrs. Barber, and described (with a colored plate) in the "Transactions of the Entomological Society," 1874, p. 519. The caterpillar feeds on the orange-tree, and also on a forest tree (*Vepris lanceolata*) which has a lighter green leaf, and its color corresponds with that of the leaves it feeds upon, being of a darker green when it feeds on the orange. The chrysalis is usually found suspended among the leafy twigs of its food-plant, or of some neighboring tree; but it is probably often attached to larger branches, and Mrs. Barber has discovered that it has the property of acquiring the color, more or less accurately, of any natural object it may be in contact with. A number of the caterpillars were placed in a case with a glass cover, one side of the case being formed by a red brick wall, the other sides being of yellowish wood. They were fed on orange leaves, and a branch of the bottle-brush tree (*Banksia sp.*) was also placed in the case. When fully fed, some attached themselves to the orange twigs, others to the bottle-brush branch; and these all changed to green pupæ; but each corresponded exactly in tint to the leaves around it, the one being dark, the other a pale, faded green. Another attached itself to the wood, and the pupa became of the same yellowish color; while one fixed itself just where the wood and brick joined, and became one side red the other side yellow! These remarkable changes would perhaps not have been credited, had it not been for the previous observations of Mr. Wood; but the two support each other, and oblige us to accept them as actual phenomena. It is a kind of natural photography, the particular colored rays to which the fresh pupa is exposed in its soft, semi-transparent condition effecting such a chemical change in the organic juices as to produce the same tint in the hardened skin. It is interesting, however, to note that the range of color that can be acquired seems to be limited to those of natural objects to which the pupa is likely to be attached; for when Mrs. Barber surrounded one of the caterpillars with a piece of scarlet cloth no change of color at all was produced, the

pupa being of the usual green tint, but the small red spots with which it is marked were brighter than usual.

In these caterpillars and pupæ, as well as in the great majority of cases in which a change of color occurs in animals, the action is quite involuntary; but among some of the higher animals the color of the integument can be modified at the will of the animal, or at all events by a reflex action dependent on sensation. The most remarkable case of this kind occurs with the chameleon, which has the power of changing its color from dull white to a variety of tints. This singular power has been traced to two layers of pigment deeply seated in the skin, from which minute tubes, or capillary vessels, rise to the surface. The pigment-layers are bluish and yellowish, and by the pressure of suitable muscles these can be forced upwards either together or separately. When no pressure is exerted the color is dirty white, which changes to various tints of bluish, green, yellow, or brown, as more or less of either pigment is forced up and rendered visible. The animal is excessively sluggish and defenceless, and its power of changing its color to harmonize with surrounding objests is essential to its existence. Here too, as with the pupa of *Papilio Nireus*, colors such as scarlet or blue, which do not occur in the immediate environment of the animal, cannot be produced. Somewhat similar changes of color occur in some prawns and flatfish, according to the color of the bottom on which they rest. This is very striking in the chameleon shrimp (*Mysis Chamæleon*), which is grey when on sand, but brown or green when among seaweed of these two colors. Experiment shows, however, that when blinded the change does not occur, so that here too we probably have a voluntary or reflex-sense action. Many cases are known among insects in which the same species has a different tint according to its surroundings, this being particularly marked in some south-African locusts which correspond with the color of the soil wherever they are found; while several caterpillars which feed on two or more plants vary in color accordingly. Several such changes are quoted by Mr. R. Meldola, in a paper on variable protective colcoloring in insects ("Proceedings of the Zoological Society in London," 1873, p 153), and some of them may perhaps be due to a photographic action of the reflected light. In other cases, however, it has been shown that green chlorophyll remains unchanged in the tissues of leaf-eating insects, and being discernible through the transparent integument produces the same color as that of the food-plant.

These peculiar powers of change of color and adaptation, are however rare and quite exceptional. As a rule there is no direct connection between the colors of organisms and the kind of light to which they are usually exposed. This is well seen in most fishes, and in such marine animals as porpoises, whose backs are always dark, although this part is exposed to the blue and white light of the sky and clouds, while their bellies are very generally white, although these are constantly subjected to the deep blue or dusky green light from the bottom. It is evident, however, that these two tints have been acquired for concealment and protection. Looking *down* on the dark back of a fish it is almost invisible, while to an enemy looking *up* from below the light under surface would be equally invisible against the light of the clouds and sky. Again, the gorgeous colors of the butterflies which inhabit the depths of tropical forests bear no relation to the kind of light that falls upon them, coming as it does almost wholly from green foliage, dark brown soil, or blue sky; and the bright under wings of many moths which are only exposed at night, contrast remarkably with the sombre tints of the upper wings which are more or less exposed to the various colors of surrounding nature.

We find, then, that neither the general influence of solar light and heat, nor the special action of variously-tinted rays are adequate causes for the wonderful variety, intensity, and complexity of the colors that everywhere meet us in the animal and vegetable world. Let us therefore take a wider view of these colors, grouping them into classes determined by what we know of their actual uses or special relations to the habits of their possessors. This, which may be termed the functional or biological classification of the colors of living organisms, seems to be best expressed by a division into five groups as follows: —

Animals.
1. Protective colors.
2. Warning colors.
   a. Of creatures specially protected.
   b. Of defenceless creatures mimicking *a*.
3. Sexual colors.
4. Typical colors.

Plants.
5. Attractive colors.

The nature of the two first groups, protective and warning colors, has been

so fully detailed and illustrated in my chapter on "Mimicry and other Protective Resemblances among Animals," ("Contributions to the Theory of Natural Selection," p. 45), that very little need be added here except a few words of general explanation. Protective colors are exceedingly prevalent in nature, comprising those of all the white arctic animals, the sandy-colored desert forms, and the green birds and insects of tropical forests. It also comprises thousands of cases of special resemblance — of birds to the surroundings of their nests, and especially of insects to the bark, leaves, flowers, or soil, on or amid which they dwell. Mammalia, fishes, and reptiles, as well as mollusca and other marine invertebrates, present similar phenomena; and the more the habits of animals are investigated, the more numerous are found to be the cases in which their colors tend to conceal them, either from their enemies or from the creatures they prey upon. One of the last-observed and most curious of these protective resemblances has been communicated to me by Sir Charles Dilke. He was shown in Java a pink-colored mantis, which, when at rest, exactly resembled a pink orchis-flower. The mantis is a carnivorous insect, which lies in wait for its prey, and by its resemblance to a flower the insects it feeds on would be actually attracted towards it. This one is said to feed especially on butterflies, so that it is really a living trap and forms its own bait! All who have observed animals, and especially insects, in their native haunts and attitudes, can understand how it is that an insect which in a cabinet looks exceedingly conspicuous, may yet, when alive in its peculiar attitude of repose and with its habitual surroundings, be perfectly well concealed. We can hardly ever tell by the mere inspection of an animal, whether its colors are protective or not. No one would imagine the exquisitely beautiful caterpillar of the emperor moth, which is green, with pink star-like spots, to be protectively colored; yet when feeding on the heather it so harmonizes with the foliage and flowers as to be almost invisible. Every day fresh cases of protective coloring are being discovered even in our own country, and it is becoming more and more evident that the need of protection has played a very important part in determining the actual coloration of animals.

The second class — the warning colors — are exceedingly interesting, because the object and effect of these is, not to conceal the object, but to make it conspicuous. To these creatures it is *useful* to be seen and recognized, the reason being that they have a means of defence which, if known, will prevent their enemies from attacking them, though it is generally not sufficient to save their lives if they are actually attacked. The best examples of these specially protected creatures consist of two extensive families of butterflies, the danaidæ and acræidæ, comprising many hundreds of species inhabiting the tropics of all parts of the world. These insects are generally large, are all conspicuously and often most gorgeously colored, presenting almost every conceivable tint and pattern; they all fly slowly, and they never attempt to conceal themselves: yet no bird, spider, lizard, or monkey (all of which eat other butterflies) ever touch them. The reason simply is that they are not fit to eat, their juices having a powerful odor and taste that is absolutely disgusting to all these animals. Now, we see the reason of their showy colors and slow flight. It is good for them to be seen and recognized, for then they are never molested; but if they did not differ in form and coloring from other butterflies, or if they flew so quickly that their peculiarities could not be easily noticed, they would be captured, and though not eaten would be maimed or killed. As soon as the cause of the peculiarities of these butterflies was recognized, it was seen that the same explanation applied to many other groups of animals. Thus bees and wasps and other stinging insects are showily and distinctively colored; many soft and apparently defenceless beetles, and many gay-colored moths, were found to be as nauseous as the above-named butterflies; other beetles, whose hard and glossy coats of mail render them unpalatable to insect-eating birds, are also sometimes showily colored; and the same rule was found to apply to caterpillars, all the brown and green (or protectively-colored species) being greedily eaten by birds, while showy kinds which never hide themselves — like those of the magpie, mullein, and burnet moths — were utterly refused by insectivorous birds, lizards, frogs and spiders. ("Contributions to Theory of Natural Selection," p. 117.) Some few analogous examples are found among vertebrate animals. I will only mention here a very interesting case not given in my former work. In his delightful book entitled "The Naturalist in Nicaragua," Mr. Belt tells us that there is in that country a frog which is very abundant, which hops about

in the daytime, which never hides himself, and which is gorgeously colored with red and blue. Now frogs are usually green, brown, or earth-colored, feed mostly at night, and are all eaten by snakes and birds. Having full faith in the theory of protective and warning colors, to which he had himself contributed some valuable facts and observations, Mr. Belt felt convinced that this frog must be uneatable. He therefore took one home, and threw it to his ducks and fowls; but all refused to touch it except one young duck, which took the frog in its mouth, but dropped it directly, and went about jerking its head as if trying to get rid of something nasty. Here the uneatableness of the frog was predicted from its colors and habits, and we can have no more convincing proof of the truth of the theory than such previsions.

The universal avoidance by carnivorous animals of all these specially protected groups, which are thus entirely free from the constant persecution suffered by other creatures not so protected, would evidently render it advantageous for any of these latter which were subjected to extreme persecution to be mistaken for the former, and for this purpose it would be necessary that they should have the same colors, form, and habits. Strange to say, wherever there is an extensive group of directly protected forms (division *a* of animals with warning colors), there are sure to be found a few otherwise defenceless creatures which resemble them externally so as to be mistaken for them, and which thus gain protection as it were on false pretences, (division *b* of animals with warning colors). This is what is called "mimicry," and it has already been very fully treated of by Mr. Bates (its discoverer), by myself, by Mr. Trimen, and others. Here it is only necessary to state that the uneatable danaidæ and acræidæ are accompanied by a few species of other groups of butterflies (leptalidæ, papilios, diademas, and moths) which are all really eatable, but which escape attack by their close resemblance to some species of the uneatable groups found in the same locality. In like manner there are a few eatable beetles which exactly resemble species of uneatable groups, and others, which are soft, imitate those which are uneatable through their hardness. For the same reason wasps are imitated by moths, and ants by beetles; and even poisonous snakes are mimicked by harmless snakes, and dangerous hawks by defenceless cuckoos. How these curious imitations have been brought about, and the laws which govern them, have been discussed in the work already referred to.

The third class — sexual colors — comprise all cases in which the colors of the two sexes differ. This difference is very general, and varies greatly in amount, from a slight divergence of tint up to a radical change of coloration. Differences of this kind are found among all classes of animals in which the sexes are separated, but they are much more frequent in some groups than in others. In mammalia, reptiles, and fishes, they are comparatively rare and not great in amount, whereas among birds they are very frequent and very largely developed. So among insects, they are abundant in butterflies, while they are comparatively uncommon in beetles, wasps, and hemiptera.

The phenomena of sexual variations of color, as well as of color generally, are wonderfully similar in the two analogous yet totally unrelated groups of birds and butterflies; and as they both offer ample materials, we shall confine our study of the subject chiefly to them. The most common case of difference of color between the sexes, is for the male to have the same general hue as the females, but deeper and more intensified; as in many thrushes, finches, and hawks; and among butterflies in the majority of our British species. In cases where the male is smaller the intensification of color is especially well pronounced, as in many of the hawks and falcons, and in most butterflies and moths in which the coloration does not materially differ. In another extensive series we have spots or patches of vivid color in the male which are represented in the female by far less brilliant tints or are altogether wanting; as exemplified in the gold-crest warbler, the green woodpecker, and most of the orange-tip butterflies (*Anthocharis*). Proceeding with our survey we find greater and greater differences of color in the sexes, till we arrive at such extreme cases as some of the pheasants, the chatterers, tanagers, and birds of paradise, in which the male is adorned with the most gorgeous and vivid colors, while the female is usually dull brown, or olive green, and often shows no approximation whatever to the varied tints of her partner. Similar phenomena occur among butterflies; and in both these classes there are also a considerable number of cases in which both sexes are highly colored in a different way. Thus many woodpeckers have the head in the male red, in the female yellow; while some parrots have red spots in the male, replaced by blue in the female, as in *Psit-*

tacula diopthalma. In many South American papilios green spots on the male are represented by red on the female; and in several species of the genus epicalia, orange bands in the male are replaced by blue in the female, a similar change of color as in the small parrot above referred to. For fuller details of the varieties of sexual coloration we refer our readers to Mr. Darwin's "Descent of Man," chapters x. to xviii., and to chapters iii., iv., and vii. of my "Contributions to the Theory of Natural Selection."

The fourth group — of typically-colored animals — includes all species which are brilliantly or conspicuously colored in both sexes, and for whose particular colors we can assign no function or use. It comprises an immense number of showy birds, such as kingfishers, barbets, toucans, lories, tits, and starlings; among insects most of the largest and handsomest butterflies, innumerable bright-colored beetles, locusts, dragon-flies, and hymenoptera; a few mammalia, as the zebras; a great number of marine fishes; thousands of striped and spotted caterpillars; and abundance of mollusca, starfish, and other marine animals. Among these we have included some, which like the gaudy caterpillars have warning colors; but as that theory does not explain the particular colors or the varied patterns with which they are adorned, it is best to include them also in this class. It is a suggestive fact, that all the brightly-colored birds mentioned above build in holes or form covered nests, so that the females do not need that protection during the breeding season, which I believe to be one of the chief causes of the dull color of female birds when their partners are gaily colored. This subject is fully argued in my "Contributions," etc., chapter vii.

As the colors of plants and flowers are very different from those of animals both in their distribution and functions, it will be well to treat them separately: we will therefore now consider how the general facts of color here sketched out can be explained. We have first to inquire what is color, and how it is produced; what is known of the causes of change of color; and what theory best accords with the whole assemblage of facts.

The sensation of color is caused by vibrations or undulations of the ethereal medium of different lengths and velocities. The whole body of vibrations caused by the sun is termed radiation, and consists of sets of waves which vary considerably in their dimensions and their rate of vibration, but of which the middle portion only is capable of exciting in us sensations of light and color. Beginning with the largest and slowest rays of wave-vibrations, we have first those which produce heat-sensations only; as they get smaller and quicker, we perceive a dull red color; and as the waves increase in rapidity of vibration and diminish in size, we get successively sensations of orange, yellow, green, blue, indigo, and violet, all fading imperceptibly into each other. Then come more invisible rays, of shorter wave-length and quicker vibration, which produce, solely or chiefly, chemical effects. The red rays, which first become visible, have been ascertained to vibrate at the rate of four hundred and fifty-eight millions of millions of times in a second, the length of each wave being one thirty-six-thousand-nine-hundredth of an inch; while the violet rays, which last remain visible, vibrate seven hundred and twenty-seven millions of millions of times per second, and have a wave-length of one sixty four-thousand-five-hundred-and-sixteenth of an inch. Although the waves vibrate at different rates, they are all propagated through the ether with the same velocity (one hundred and ninety-two thousand miles per second), just as different musical sounds, which are produced by waves of *air* of different lengths and rates of vibration, travel at the same rate, so that a tune played several hundred yards off reaches the ear in correct time. There are, therefore, an almost infinite number of different color-producing vibrations, and these may be combined in an almost infinite variety of ways, so as to excite in us the sensation of all the varied colors and tints we are capable of perceiving. When all the different kinds of rays reach us in the proportion in which they exist in the light of the sun, they produce the sensation of white. If the rays which excite the sensation of any one color are prevented from reaching us, the remaining rays in combination produce a sensation of color often very far removed from white. Thus green rays being abstracted leave purple light; blue, orange-red light; violet, yellowish-green light, and so on. These pairs are termed complementary colors. And if portions of differently-colored lights are abstracted in various degrees, we have produced all those infinite gradations of colors, and all those varied tints and hues which are of such use to us in distinguishing external objects, and which form one of the great charms of our existence. Pri-

mary colors would therefore be as numerous as the different wave-lengths of the visible radiations if we could appreciate all their differences, while secondary or compound colors caused by the simultaneous action of any combination of rays of different wave-lengths must be still more numerous. In order to account for the fact that all colors appear to us capable of being produced by combinations of three primary colors — red, green, and violet — it is believed that we have three sets of nerve-fibres in the retina, each of which is capable of being excited by all rays, but that one set is excited most by the larger or red waves, another by the medium or green waves, and the third set chiefly by the violet or smallest waves of light; and when all three sets are excited together in proper proportions we see white. This view is supported by the phenomena of color-blindness, which are explicable on the theory that one of these sets of nerve-fibres (usually that adapted to perceive red) has lost its sensibility, causing all colors to appear as if the red rays were abstracted from them. It is another property of these various radiations, that they are unequally refracted or bent in passing obliquely through transparent bodies, the longer waves being least refracted, the shorter most. Hence it becomes possible to analyze white or any other light into its component rays; a small ray of sunlight, for example, which would produce a round white spot on a wall, if passed through a prism is lengthened out into a band of colored light exactly corresponding to the colors of the rainbow. Any one color can thus be isolated and separately examined, and by means of reflecting mirrors the separate colors can be again compounded in various ways, and the resulting colors observed. This band of colored light is called a *spectrum*, and the instrument by which the *spectra* of various kinds of light are examined is called a *spectroscope*. This branch of the subject has, however, no direct bearing on the mode in which the colors of living things are produced, and it has only been alluded to in order to complete our sketch of the nature of color.

The colors which we perceive in material substances are produced either by the absorption or by the interference of some of the rays which form white light. Pigmental or absorption colors are the most frequent, comprising all the opaque tints of flowers and insects, and all the colors of dyes and pigments. They are caused by rays of certain wave-lengths being absorbed, while the remaining rays are reflected and give rise to the sensation of color. When all the color-producing rays are reflected in due proportion the color of the object is white, when all are absorbed the color is black. If blue rays only are absorbed the resulting color is orange-red; and generally, whatever color an object appears to us, it is because the complementary colors are absorbed by it. The reason why rays of only certain refrangibilities are reflected and the rest of the incident light absorbed by each substance, is supposed to depend upon the molecular structure of the body. Chemical action almost always implies change of molecular structure, hence chemical action is the most potent cause of change of color. Sometimes simple solution in water effects a marvellous change, as in the case of the well-known aniline dyes; the magenta and violet dyes exhibiting, when in the solid form, various shades of golden or bronzy metallic green. Heat again often produces change of color, and this without effecting any chemical change. Mr. Ackroyd has recently investigated this subject,* and has shown that a large number of bodies are changed by heat, returning to their normal color when cooled, and that this change is almost always in the direction of the less refrangible rays or longer wave-lengths; and he connects the change with molecular expansion caused by heat. As examples may be mentioned mercuric oxide, which is orange-yellow, but which changes to orange, red, and brown when heated; chromic-oxide, which is green, and changes to yellow; cinnabar, which is scarlet, and changes to puce; and metaborate of copper, which is blue, and changes to green and greenish yellow. The coloring matters of animals are very varied. Copper has been found in the red of the wing of the turaco, and Mr. Sorby has detected no less than seven distinct coloring matters in birds' eggs, several of which are chemically related to those of blood and bile. The same colors are often produced by quite different substances in different groups, as shown by the red of the wings of the burnet moth changing to yellow with muriatic acid, while the red of the red admiral butterfly undergoes no such change.

These pigmental colors have a different character in animals according to their position in the integument. Following

* "Metachromatism, or Color-Change," *Chemical News*, August, 1876.

Dr. Hagen's classification, epidermal colors are those which exist in the external chitinized skin of insects, in the hairs of mammals, and, partially, in the feathers of birds. They are often very deep and rich, and do not fade after death. The hypodermal colors are those which are situated in the inferior soft layer of the skin. These are often of lighter and more vivid tints, and usually fade after death. Many of the reds and yellows of butterflies and birds belong to this class, as well as the intensely vivid hues of the naked skin about the heads of many birds. These colors sometimes exude through the pores, forming an evanescent bloom on the surface.

Interference colors are less frequent in the organic world. They are caused in two ways: either by reflection from the two surfaces of transparent films, as seen in the soap-bubble and in thin films of oil on water; or by fine striæ which produce colors either by reflected or transmitted light, as seen in mother-of-pearl and in finely-ruled metallic surfaces. In both cases color is produced by light of one wave-length being neutralized, owing to one set of such waves being caused to be half a wave-length behind the other set, as may be found explained in any treatise on physical optics. The result is, that the complementary color of that neutralized is seen; and as the thickness of the film or the fineness of the striæ undergo slight changes almost any color can be produced. This is believed to be the origin of many of the glossy or metallic tints of insects, as well as of those of the feathers of some birds. The iridescent colors of the wings of dragon-flies are caused by the superposition of two or more transparent lamellæ; while the shining blue of the purple-emperor and other butterflies, and the intensely metallic colors of humming-birds are probably due to fine striæ.

This outline sketch of the nature of color in the animal world, however imperfect, will at least serve to show us how numerous and varied are the causes which perpetually tend to the production of color in animal tissues. If we consider that in order to produce white all the rays which fall upon an object must be reflected in the same proportions as they exist in solar light, whereas if rays of any one or more kinds are absorbed or neutralized the resultant reflected light will be colored, and that this color may be infinitely varied according to the proportions in which different rays are reflected or absorbed, we should expect that white would be, as it really is, comparatively rare and exceptional in nature. The same observation will apply to black, which arises from the absorption of all the different rays. Many of the complex substances which exist in animals and plants are subject to changes of color under the influence of light, heat, or chemical change, and we know that chemical changes are continually occurring during the physiological processes of development and growth. We also find that every external character is subject to minute changes, which are generally perceptible to us in closely allied species; and we can therefore have no doubt that the extension and thickness of the transparent lamellæ, and the fineness of the striæ or rugosities of the integuments, must be undergoing constant minute changes; and these changes will very frequently produce changes of color. These considerations render it probable that color is a normal and even necessary result of the complex structure of animals and plants, and that those parts of an organism which are undergoing continual development and adaptation to new conditions, and are also continually subject to the action of light and heat, will be the parts in which changes of color will most frequently appear. Now there is little doubt that the external changes of animals and plants in adaptation to the environment are much more numerous than the internal changes, as seen in the varied character of the integuments and appendages of animals — hair, horns, scales, feathers, etc., etc., and in plants, the leaves, bark, flowers, and fruit, with their various appendages — compared with the comparative uniformity of the texture and composition of their internal tissues; and this accords with the uniformity of the tints of blood, muscle, nerve, and bone throughout extensive groups, as compared with the great diversity of color of their external organs. It seems a fair conclusion that color *per se* may be considered to be normal, and to need no special accounting for, while the absence of color (that is, either *white* or *black*), or the prevalence of certain colors to the constant exclusion of others, must be traced, like other modifications in the economy of living things, to the needs of the species. Or, looking at it in another aspect, we may say, that amid the constant variations of animals and plants color is ever tending to vary and to appear where it is absent, and that natural selection is constantly eliminating such tints as are injurious to the species, or preserving and intensifying such as are useful.

This view is in accordance with the well-known fact, of colors which rarely or never appear in the species in a state of nature continually occurring among domesticated animals and cultivated plants; showing us that the capacity to develop color is ever present, so that almost any required tint can be produced which may, under changed conditions, be useful, in however small a degree.

Let us now see how these principles will enable us to understand and explain the varied phenomena of color in nature, taking them in the order of our functional classification of colors (p. 71).

Theory of Protective Colors. — We have seen that obscure or protective tints in their infinitely varied degrees are present in every part of the animal kingdom, whole families or genera being often thus colored. Now the various brown, earthy, ashy, and other neutral tints are those which would be most readily produced, because they are due to an irregular mixture of many kinds of rays; while pure tints require either rays of one kind only, or definite mixtures in proper proportions of two or more kinds of rays. This is well exemplified by the comparative difficulty of producing definite pure tints by the mixture of two or more pigments, while a haphazard mixture of a number of these will be almost sure to produce browns, olives, or other neutral or dirty colors. An indefinite or irregular absorption of some rays and reflection of others would, therefore, produce obscure tints; while pure and vivid colors would require a perfectly definite absorption of one portion of the colored rays, leaving the remainder to produce the true complementary color. This being the case we may expect these brown tints to occur when the need of protection is very slight or even when it does not exist at all, always supposing that bright colors are not in any way useful to the species. But whenever a pure color is protective, as green in tropical forests or white among arctic snows, there is no difficulty in producing it, by natural selection acting on the innumerable slight variations of tint which are ever occurring. Such variations may, as we have seen, be produced in a great variety of ways; either by chemical changes in the secretions or by molecular changes in surface structure, and may be brought about by change of food, by the photographic action of light, or by the normal process of generative variation. Protective colors therefore, however curious and complex they may be in certain cases, offer no real difficulties.

Theory of Warning Colors. — These differ greatly from the last class, inasmuch as they present us with a variety of brilliant hues, often of the greatest purity, and combined in striking contrasts and conspicuous patterns. Their use depends upon their boldness and visibility, not on the presence of any one color; hence we find among these groups some of the most exquisitely-colored objects in nature. Many of the uneatable caterpillars are strikingly beautiful; while the danaidæ, heliconidæ, and protected groups of papilionidæ comprise a series of butterflies of the most brilliant and contrasted colors. The bright colors of many of the sea-anemones and sea-slugs will probably be found to be in this sense protective, serving as a warning of their uneatableness. On our theory none of these colors offer any difficulty. Conspicuousness being useful, every variation tending to brighter and purer colors was selected, the result being the beautiful variety and contrast we find.

But when we come to those groups which gain protection solely by being mistaken for some of these brilliantly-colored but uneatable creatures, a difficulty really exists, and to many minds is so great as to be insuperable. It will be well therefore to endeavor to explain how the resemblance in question may have been brought about. The most difficult case, which may be taken as a type of the whole, is that of the genus *Leptalis* (a group of South American butterflies allied to our common white and yellow kinds), many of the larger species of which are still white or yellow, and which are all eatable by birds and other insectivorous creatures. But there are also a number of species of *Leptalis*, which are brilliantly red, yellow, and black, and which, band for band and spot for spot resemble some one of the danaidæ or heliconidæ which inhabit the same district and which are nauseous and uneatable. Now the common objection is, that a slight approach to one of these protected butterflies would be of no use, while a greater sudden variation is not admissible on the theory of gradual change by indefinite slight variations. This objection depends almost wholly on the supposition that when the first steps towards mimicry occurred, the South American danaidæ were what they are now, while the ancestors of the leptalides were like the ordinary white or yellow pieridæ to which they are allied. But the danaioid butterflies of South America are so immensely numerous and so greatly varied, not only

in color but in structure, that we may be sure they are of vast antiquity and have undergone great modification. A large number of them, however, are still of comparatively plain colors, often rendered extremely elegant by the delicate transparency of the wing-membrane, but otherwise not at all conspicuous. Many have only dusky or purplish bands or spots, others have patches of reddish or yellowish brown — perhaps the commonest color among butterflies; while a considerable number are tinged or spotted with yellow, also a very common color, and one especially characteristic of the pieridæ, the family to which *Leptalis* belongs. We may therefore reasonably suppose that in the early stages of the development of the danaidæ, when they first began to acquire those nauseous secretions which are now their protection, their colors were somewhat plain, either dusky with paler bands and spots, or yellowish with dark borders, and sometimes with reddish bands or spots. At this time they had probably shorter wings and a more rapid flight, just like the other unprotected families of butterflies. But as soon as they became decidedly unpalatable to any of their enemies, it would be an advantage to them to be readily distinguished from all the eatable kinds; and as butterflies were no doubt already very varied in color, while all probably had wings adapted for pretty rapid or jerking flight, the best distinction might have been found in outline and habits; whence would arise the preservation of those varieties whose longer wings, bodies, and antennæ, and slower flight rendered them noticeable,— characters which now distinguish the whole group in every part of the world. Now it would be at this stage that some of the weaker-flying pieridæ which happened to resemble some of the danaidæ around them in their yellow and dusky tints and in the general outline of their wings, would be sometimes mistaken for them by the common enemy, and would thus gain an advantage in the struggle for existence. Admitting this one step to be made, and all the rest must inevitably follow from simple variation and survival of the fittest. So soon as the nauseous butterfly varied in form or color to such an extent that the corresponding eatable butterfly no longer closely resembled it, the latter would be exposed to attacks, and only those variations would be preserved which kept up the resemblance. At the same time we may well suppose the enemies to become more acute and able to detect smaller differences than at first. This would lead to the destruction of all adverse variations, and thus keep up in continually increasing complexity the outward mimicry which now so amazes us. During the long ages in which this process has been going on, many a *Leptalis* may have become extinct from not varying sufficiently in the right direction and at the right time to keep up a protective resemblance to its neighbor; and this will accord with the comparatively small number of cases of true mimicry as compared with the frequency of those protective resemblances to vegetable or inorganic objects whose forms are less definite and colors less changeable. About a dozen other genera of butterflies and moths mimic the danaidæ in various parts of the world, and exactly the same explanation will apply to all of them. They represent those species of each group which at the time when the danaidæ first acquired their protective secretions happened outwardly to resemble some of them, and have by concurrent variation, aided by a right selection, been able to keep up that resemblance to the present day.*

Theory of Sexual Colors. In Mr. Darwin's celebrated work, "The Descent of Man, and Selection in Relation to Sex," he has treated of sexual color in combination with other sexual characters, and has arrived at the conclusion that all or almost all of the colors of the higher animals (including among these insects and all vertebrates) are due to voluntary sexual selection; and that diversity of color in the sexes is due, primarily, to the transmission of color-variations either to one sex only or to both sexes, the difference depending on some unknown law, and not being due to natural selection.

I have long held this portion of Mr. Darwin's theory to be erroneous, and have argued that the primary cause of sexual diversity of color was the need of protection, repressing in the female those bright colors which are normally produced in both sexes by general laws; and I have attempted to explain many of the more difficult cases on this principle ("A Theory of Birds' Nests," in "Contributions," etc., p. 231). As I have since given much

* For fuller information on this subject the reader should consult Mr. Bates's original paper, "Contributions to an Insect Fauna of the Amazon Valley," in "Transactions of the Linnean Society," vol. xxiii., p. 495; Mr. Trimen's paper in vol. xxvi., p. 497; the author's essay on "Mimicry," etc., already referred to; and, in the absence of collections of butterflies, the plates of heliconidæ and leptalidæ, in Hewitson's "Exotic Butterflies," and Felder's "Voyage of the 'Novara,'" may be examined.

thought to this subject, and have arrived at some views which appear to me to be of considerable importance, it will be well to sketch briefly the theory I now hold, and afterwards show its application to some of the detailed cases adduced in Mr. Darwin's work.

The very frequent superiority of the male bird or insect in brightness or intensity of color, even when the general tints and coloration are the same, now seem to me to be due to the greater vigor and activity and the higher vitality of the male. The colors of an animal usually fade during disease or weakness, while robust health and vigor adds to their intensity. This intensity of coloration is most manifest in the male during the breeding season, when the vitality is at a maximum. It is also very manifest in those cases in which the male is smaller than the female, as in the hawks and in most butterflies and moths. The same phenomena occur, though in a less marked degree, among mammalia. Whenever there is a difference of color between the sexes the male is the darker or more strongly marked, and difference of intensity is most visible during the breeding season ("Descent of Man," p. 533). Numerous cases among domestic animals also prove, that there is an inherent tendency in the male to special developments of dermal appendages and color, quite independently of sexual or any other form of selection. Thus, "the hump on the male zebu cattle of India, the tail of fat-tailed rams, the arched outline of the forehead in the males of several breeds of sheep, and the mane, the long hairs on the hind legs, and the dewlap of the male of the Berbura goat," are all adduced by Mr. Darwin as instances of characters peculiar to the male, yet not derived from any parent ancestral form. Among domestic pigeons the character of the different breeds is often most strongly manifested in the male birds; the wattle of the carriers and the eyewattles of the barbs are largest in the males, and male pouters distend their crops to a much greater extent than do the females, and the cock fantails often have a greater number of tail-feathers than the females. There are also some varieties of pigeons of which the males are striped or spotted with black while the females are never so spotted ("Animals and Plants under Domestication," i. 161); yet in the parent stock of these pigeons there are no differences between the sexes either of plumage or color, and artificial selection has not been applied to produce them.

The greater intensity of coloration in the male — which may be termed the normal sexual difference, would be further developed by the combats of the males for the possession of the females. The most vigorous and energetic usually being able to rear most offspring, intensity of color, if dependent on, or correlated with vigor, would tend to increase. But as differences of color depend upon minute chemical or structural differences in the organism, increasing vigor acting unequally on different portions of the integument, and often producing at the same time abnormal developments of hair, horns, scales, feathers, etc., would almost necessarily lead also to variable distribution of color, and thus to the production of new tints and markings. These acquired colors would, as Mr. Darwin has shown, be transmitted to both sexes or to one only, according as they first appear at an early age, or in adults of one sex, and thus we may account for some of the most marked differences in this respect. With the exception of butterflies, the sexes are almost alike in the great majority of insects. The same is the case in mammals and reptiles, while the chief departure from the rule occurs in birds, though even here in very many cases the law of sexual likeness prevails. But in all cases where the increasing development of color became disadvantageous to the female, it would be checked by natural selection, and thus produce those numerous instances of protective coloring in the female only, which occur in these two groups of animals.

There is also, I believe, a very important purpose and use of the varied colors of the higher animals, in the facility it affords for recognition by the sexes or by the young of the same species; and it is this use which probably fixes and determines the coloration in many cases. When differences of size and form are very slight, color affords the only means of recognition at a distance or while in motion, and such a distinctive character must therefore be of especial value to flying insects which are continually in motion, and encounter each other, as it were, by accident. This view offers us an explanation of the curious fact, that among butterflies the females of closely allied species in the same locality sometimes differ considerably, while the males are much alike; for as the males are the swiftest and the highest fliers, and seek the females, it would evidently be advantageous for them to be able to recognize their true partners at some distance off. This peculiarity

occurs with many species of papilio, diadema, adolias, and colias. In birds such marked differences of color are not required, owing to the higher organization and more perfect senses, which render recognition easy by means of a combination of very slight differential characters. This principle may, perhaps, however, account for some anomalies of coloration among the higher animals. Thus, Mr. Darwin, while admitting that the hare and the rabbit are colored protectively, remarks that the latter, while running to its burrow, is made conspicuous to the sportsman, and no doubt to all beasts of prey, by its upturned white tail. But this very conspicuousness while running away, may be useful as a signal and guide to the young, who are thus enabled to escape danger by following the older rabbits, directly and without hesitation, to the safety of the burrow; and this may be the more important from the semi-nocturnal habits of the animal. If this explanation is correct, and it certainly seems probable, it may serve as a warning of how impossible it is, without exact knowledge of the habits of an animal and a full consideration of all the circumstances, to decide that any particular coloration cannot be protective or in any way useful. Mr. Darwin himself is not free from such assumptions. Thus, he says: "The zebra is conspicuously striped, and stripes cannot afford any protection on the open plains of south Africa." But the zebra is a very swift animal, and, when in herds, by no means void of means of defence. The stripes therefore *may* be of use by enabling stragglers to distinguish their fellows at a distance, and they *may* be even protective when the animal is at rest among herbage — the only time when it would need protective coloring. Until the habits of the zebra have been observed with special reference to this point, it is surely somewhat hasty to declare that the stripes "cannot afford any protection."

The wonderful display and endless variety of color in which butterflies and birds so far exceed all other animals, seems primarily due to the excessive development and endless variations of the integumentary structures. No insects have such widely expanded wings in proportion to their bodies as butterflies and moths; in none do the wings vary so much in size and form, and in none are they clothed with such a beautiful and highly-organized coating of scales. According to the general principles of the production of color already explained, these long-continued expansions of membranes and developments of surface structures must have led to numerous color-changes, which have been sometimes checked, sometimes fixed and utilized, sometimes intensified, by natural selection, according to the needs of the animal. In birds, too, we have the wonderful clothing of plumage — the most highly organized, the most varied, and the most expanded of all dermal appendages. The endless processes of growth and change during the development of feathers, and the enormous extent of this delicately-organized surface, must have been highly favorable to the production of varied color-effects, which, when not injurious, have been merely fixed for purposes of specific identification, but have often been modified or suppressed whenever different tints were needed for purposes of protection.

To voluntary sexual selection, that is, the actual choice by the females of the more brilliantly-colored males, I believe very little if any effect is directly due. It is undoubtedly proved that in birds the females do sometimes exert a choice; but the evidence of this fact collected by Mr. Darwin ("Descent of Man," chap. xiv.) does not prove that color determines that choice, while much of the strongest evidence is directly opposed to this view. All the facts appear to be consistent with the choice depending on a variety of male characteristics, with some of which color is often correlated. Thus it is the opinion of some of the best observers that vigor and liveliness are most attractive, and these are no doubt usually associated with intensity of color. Again, the display of the various ornamental appendages of the male during courtship may be attractive, but these appendages, with their bright colors or shaded paterns, are due probably to general laws of growth and to that superabundant vitality which we have seen to be a cause of color. But there are many considerations which seem to show that the possession of these ornamental appendages and bright colors in the male is not an important character functionally, and that it has not been produced by the action of voluntary sexual selection. Amid the copious mass of facts and opinions collected by Mr. Darwin as to the display of color and ornaments by the male birds, there is a total absence of any evidence that the females admire or even notice this display. The hen, the turkey, and the pea-fowl go on feeding while the male is displaying his finery, and there is reason to believe that it is his persistency and

energy rather than his beauty which wins the day. Again, evidence collected by Mr. Darwin himself proves that each bird finds a mate under any circumstances. He gives a number of cases of one of a pair of birds being shot, and the survivor being always found paired again almost immediately. This is sufficiently explained on the assumption that the destruction of birds by various causes is continually leaving widows and widowers in nearly equal proportions, and thus each one finds a fresh mate; and it leads to the conclusion that permanently unpaired birds are very scarce; so that, speaking broadly, every bird finds a mate and breeds. But this would almost or quite neutralize any effect of sexual selection of color or ornament, since the less highly-colored birds would be at no disadvantage as regards leaving healthy offspring. If, however, heightened color is correlated with health and vigor, and these healthy and vigorous birds provide best for their young, and leave offspring which, being equally healthy and vigorous, can best provide for themselves, then natural selection becomes a preserver and intensifier of color. Another most important consideration is, that male butterflies rival or even excel the most gorgeous male birds in bright colors and elegant patterns; and among these there is literally not one particle of evidence that the female is influenced by color or even that she has any power of choice, while there is much direct evidence to the contrary ("Descent of Man," p. 318). The weakness of the evidence for sexual selection among these insects is so palpable that Mr. Darwin is obliged to supplement it by the singularly inconclusive argument that, "Unless the females prefer one male to another, the pairing must be left to mere chance, and this does not appear probable (*l. c.*, p. 317)." But he has just said, "The males sometimes fight together in rivalry, and many may be seen pursuing or crowding round the same female;" while in the case of the silk-moths, "the females appear not to evince the least choice in regard to their partners." Surely the plain inference from all this is, that males fight and struggle for the almost passive female, and that the most vigorous and energetic, the strongest-winged or the most persevering, wins her. How can there be chance in this? Natural selection would here act, as in birds, in perpetuating the strongest and most vigorous males, and as these would usually be the more highly colored of their race, the same results would be produced as regards the intensification and variation of color in the one case as in the other.

Let us now see how these principles will apply to some of the cases adduced by Mr. Darwin in support of his theory of voluntary sexual selection.

In "Descent of Man," 2d ed., pp. 307–316, we find an elaborate account of the various modes of coloring of butterflies and moths, proving that the colored parts are always more or less displayed, and that they have some evident relation to an observer. Mr. Darwin then says, "From the several foregoing facts it is impossible to admit that the brilliant colors of butterflies, and of some few moths, have commonly been acquired for the sake of protection. We have seen that their colors and elegant patterns are arranged and exhibited as if for display. Hence I am led to believe that the females prefer or are most excited by the more brilliant males; for on any other supposition the males would, as far as we can see, be ornamented to no purpose" (*l. c.*, p. 316). I am not aware that any one has ever maintained that the brilliant colors of butterflies have "commonly been acquired for the sake of protection," yet Mr. Darwin has himself referred to cases in which the brilliant color is so placed as to serve for protection; as for example, the eye-spots on the hind wings of moths, which are pierced by birds and so save the vital parts of the insect, while the bright patch on the orange-tip butterflies which Mr. Darwin denies are protective, may serve the same purpose. It is in fact somewhat remarkable how very generally the black spots, ocelli, or bright patches of color are on the tips, margins, or discs of the wings; and as the insects are necessarily visible while flying, and this is the time when they are most subject to attacks by insectivorous birds, the position of the more conspicuous parts at some distance from the body may be a real protection to them. Again, Mr. Darwin admits that the white color of the male ghost-moth may render it more easily seen by the female while flying about in the dusk, and if to this we add that it will be also more readily distinguished from allied species, we have a reason for diverse ornamentation in these insects quite sufficient to account for most of the facts, without believing in the selection of brilliant males by the females, for which there is not a particle of evidence. The facts given to show that butterflies and other insects can distinguish colors and are attracted by colors similar to their

own, are quite consistent with the view that color, which continually tends to appear, is utilized for purposes of identification and distinction, when not required to be modified or suppressed for purposes of protection. The cases of the females of some species of thecla, calladryas, colias, and hipparchia, which have more conspicuous markings than the male, may be due to several causes: to obtain greater distinction from other species, for protection from birds, as in the case of the yellow-under-wing moths, while sometimes — as in hipparchia — the lower intensity of coloring in the female may lead to more contrasted markings. Mr. Darwin thinks that here the males have selected the more beautiful females, although one chief fact in support of his theory of voluntary sexual selection is, that throughout the whole animal kingdom the males are usually so ardent that they will accept any female, while the females are coy, and choose the handsomest males, whence it is believed the general brilliancy of males as compared with females has arisen.

Perhaps the most curious cases of sexual difference of color are those in which the female is very much more gaily colored than the male. This occurs most strikingly in some species of pieris in South America, and of diadema in the Malay islands, and in both cases the females resemble species of the uneatable danaidæ and heliconidæ, and thus gain a protection. In the case of *Pieris pyrrha*, *P. malenka*, and *P. lorena*, the males are plain white and black, while the females are orange, yellow, and black, and so banded and spotted as exactly to resemble species of heliconidæ. Mr. Darwin admits that these females have acquired these colors as a protection; but as there is no apparent cause for the strict limitations of the color to the female, he believes that it has been kept down in the male by its being *unattractive* to her. This appears to me to be a supposition opposed to the whole theory of sexual selection itself. For this theory is, that minute variation of color in the male are *attractive* to the female, have always been selected, and that thus the brilliant male colors have been produced. But in this case he thinks that the female butterfly had a constant aversion to every trace of color, even when we must suppose it was constantly recurring during the successive variations which resulted in such a marvellous change in herself. But if we consider the fact that the females frequent the forests where the heliconidæ abound, while the males fly much in the open, and assemble in great numbers with other white and yellow butterflies on the banks of rivers, may it not be possible that the appearance of orange stripes or patches would be as injurious to the male as it is useful to the female, by making him a more easy mark for insectivorous birds among his white companions? This seems a more probable supposition, than the altogether hypothetical choice of the female, sometimes exercised in favor of and sometimes against every new variety of color in her partner.

The full and interesting account given by Mr. Darwin of the colors and habits of male and female birds ("Descent of Man," chapters xiii. and xiv.), proves that in most, if not in all cases, the male birds fully display their ornamental plumage, before the females and in rivalry with each other; but on the essential point of whether the female's choice is determined by minute differences in these ornaments or in their colors, there appears to be an entire absence of evidence. In the section on "Preference for Particular Males by the Females," the facts quoted show indifference to color, except that some color similar to their own seems to be preferred. But in the case of the hen canary, who chose a greenfinch in preference to either chaffinch or goldfinch, gay colors had evidently no preponderating attraction. There is some evidence adduced that female birds may, and probably do, choose their mates, but none whatever that the choice is determined by difference of color; and no less than three eminent breeders informed Mr. Darwin that they "did not believe that the females prefer certain males on account of the beauty of their plumage." Again, Mr. Darwin himself says: "As a general rule color appears to have little influence on the pairing of pigeons." The oft-quoted case of Sir R. Heron's peahens which preferred an "old pied cock" to those normally colored, is a very unfortunate one, because pied birds are just those that are not favored in a state of nature, or the breeds of wild birds would become as varied and mottled as our domestic varieties. If such irregular fancies were not rare exceptions the production of definite colors and patterns by the choice of the female birds, or in any other way, would be impossible.

We now come to such wonderful developments of plumage and color as are exhibited by the peacock and the Argus pheasant; and I may here mention that it was the case of the latter bird, as fully discussed by Mr. Darwin, which first shook

my belief in "sexual," or more properly "female" selection. The long series of gradations, by which the beautifully shaded ocelli on the secondary wing-feathers of this bird have been produced, are clearly traced out, the result being a set of markings, so exquisitely shaded as to represent "balls lying loose within sockets," — purely artificial objects of which these birds could have no possible knowledge. That this result should have been attained through thousands and tens of thousands of female birds all preferring those males whose markings varied slightly in this one direction, this uniformity of choice continuing through thousands and tens of thousands of generations, is to me absolutely incredible. And, when further, we remember that those which did not so vary would also, according to all the evidence, find mates and leave offspring, the actual result seems quite impossible of attainment by such means.

Without pretending to solve completely so difficult a problem, I would point out a circumstance which seems to afford a clue. It is, that the most highly-colored and most richly-varied markings occur on those parts of the plumage which have undergone the greatest modification, or have acquired the most abnormal development. In the peacock, the tail-coverts are enormously developed, and the "eyes" are situated on the greatly dilated ends. In the birds of paradise, breast, or neck, or head, or tail-feathers, are greatly developed and highly colored. The hackles of the cock, and the scaly breasts of humming-birds are similar developments; while in the Argus pheasant the secondary quills are so enormously lengthened and broadened as to have become almost useless for flight. Now it is easily conceivable, that during this process of development, inequalities in the distribution of color may have arisen in different parts of the same feather, and that spots and bands may thus have become broadened out into shaded spots or ocelli, in the way indicated by Mr. Darwin, much as the spots and rings on a soap-bubble increase with increasing tenuity. This is the more probable, as in domestic fowls varieties tend to become symmetrical, quite independently of sexual selection ("Descent of Man," p. 424).

If now we accept the evidence of Mr. Darwin's most trustworthy correspondents, that the choice of the female, so far as she exerts any, falls upon the "most vigorous, defiant, and mettlesome male;" and if we further believe, what is certainly the case, that these are as a rule the most brightly colored and adorned with the finest developments of plumage, we have a real and not a hypothetical cause at work. For these most healthy, vigorous, and beautiful males will have the choice of the finest and most healthy females, will have the most numerous and healthy families, and will be able best to protect and rear those families. Natural selection, and what may be termed male selection, will tend to give them the advantage in the struggle for existence, and thus the fullest plumage and the finest colors will be transmitted, and tend to advance in each succeeding generation.

There remains, however, what Mr. Darwin evidently considers his strongest argument — the display by the male of each species of its peculiar beauties of plumage and color. We have here, no doubt, a very remarkable and very interesting fact; but this too may be explained by general principles, quite independent of any choice or volition of the female bird. During pairing-time, the male bird is in a state of great excitement, and full of exuberant energy. Even unornamented birds flutter their wings or spread them out, erect their tails or crests, and thus give vent to the nervous excitability with which they are overcharged. It is not improbable that crests and other erectile feathers may be primarily of use in frightening away enemies, since they are generally erected when angry or during combat. Those individuals who were most pugnacious and defiant, and who brought these erectile plumes most frequently and most powerfully into action, would tend to increase them by use, and to leave them further developed in some of their descendants. If, in the course of this development, color appeared, we have every reason to believe it would be most vivid in these most pugnacious and energetic individuals, and as these would always have the advantage in the rivalry for mates (to which advantage the excess of color and plumage might sometimes conduce), there seems nothing to prevent a progressive development of these ornaments in *all dominant races*, that is, wherever there was such a surplus of vitality, and such complete adaptation to conditions, that the inconvenience or danger produced by them was so comparatively small as not to affect the superiority of the race over its nearest allies. If then those portions of the plumage, which were originally erected and displayed, became developed and colored, the actual display under the influence of jealousy or sexual excitement becomes

intelligible. The males, in their rivalry with each other, would see what plumes were most effective, and each would endeavor to excel his enemy as far as voluntary exertion could effect it, just as they endeavor to rival each other in song, even sometimes to the point of causing their own destruction.

There is also a general argument against Mr. Darwin's views on this question, founded on the nature and potency of "natural" as opposed to "sexual" selection, which appears to me to be itself almost conclusive of the whole matter at issue. Natural selection, or the survival of the fittest, acts perpetually and on an enormous scale. Taking the offspring of each pair of birds as, on the average, only six annually, one-third of these at most will be preserved, while the two-thirds which are least fitted will die. At intervals of a few years, whenever unfavorable conditions occur, five-sixths, nine-tenths, or even a greater proportion of the whole yearly production are weeded out, leaving only the most perfect and best adapted to survive. Now unless these survivors are on the whole the most ornamental, this rigid selective power must neutralize and destroy any influence that may be exerted by female selection. For the utmost that can be claimed for this is, that a small fraction of the least ornamented do not obtain mates, while a few of the most ornamented may leave more than the average number of offspring. Unless, therefore, there is the strictest correlation between ornament and general perfection, the former can have no permanent advantage; and if there is (as I maintain) such a correlation, then the sexual selection of ornament for which there is little or no evidence becomes needless, because natural selection which is an admitted *vera causa* will itself produce all the results. In the case of butterflies the argument becomes even stronger, because the fertility is so much greater, and the weeding out of the unfit takes place, to a great extent, in the egg and larvæ state. Unless the eggs and larva which escaped to produce the next generation were those which would produce the more highly-colored butterflies, it is difficult to perceive how the slight preponderance of color sometimes selected by the females should not be wholly neutralized by the extremely rigid selection for other qualities to which the offspring in every stage are exposed. The only way in which we can account for the observed facts is, by the supposition that color and ornament are strictly correlated with health, vigor, and general fitness to survive. We have shown that there is reason to believe that this is the case, and if so, voluntary sexual selection becomes as unnecessary as it would certainly be ineffective.

There is one other very curious case of sexual coloring among birds — that, namely, in which the female is decidedly brighter or more strongly marked than the male; as in the fighting quails (*Turnix*), painted snipe (*Rhynchæa*), two species of phalarope (*Phalaropus*), and the common cassowary (*Casuarius galeatus*). In all these cases, it is known that the males take charge of and incubate the eggs, while the females are almost always larger and more pugnacious. In my "Theory of Birds' Nests" ("Natural Selection," p. 251), I imputed this difference of color to the greater need for protection by the male bird while incubating, to which Mr. Darwin has objected that the difference is not sufficient, and is not always so distributed as to be most effective for this purpose, and he believes that it is due to reversed sexual selection, that is, to the female taking the usual *rôle* of the male, and being chosen for her brighter tints. We have already seen reason for rejecting this latter theory in every case, and I also admit that my theory of protection is, in this case, only partially if at all applicable. But the general theory of intensity of color being due to general vital energy is quite applicable; and the fact that the superiority of the female in this respect is quite exceptional, and is therefore probably not of very ancient date in any one case, will account for the difference of color thus produced being always comparatively slight.

Theory of Typical Colors. — The remaining kinds of animal colors, those which can neither be classed as protective, warning, nor sexual, are for the most part readily explained on the general principles of the development of color which we have now laid down. It is a most suggestive fact, that, in cases where color is required only as a warning, as among the uneatable caterpillars, we find, not one or two glaring tints only, but every kind of color disposed in elegant patterns, and exhibiting almost as much variety and beauty as among insects and birds. Yet here, not only is sexual selection out of the question, but the need for recognition and identification by others of the same species seems equally unnecessary. We can then only impute this variety to the normal production of color in organic

forms when fully exposed to light and air and undergoing great and rapid developmental modification. Among more perfect animals where the need for recognition has been added, we find intensity and variety of color in its highest pitch among the South American butterflies of the families heliconidæ and danaidæ, as well as among the nymphalidæ and erycinidæ, many of which obtain the necessary protection in other ways. Among birds also, wherever the habits are such that no special protection is needed for the females, and where the species frequent the depths of tropical forests and are thus naturally protected from the swoop of birds of prey, we find almost equally intense coloration; as in the trogons, barbets, and gapers.

Of the mode of action of the general principles of color-development among animals, we have an excellent example in the humming-birds. Of all birds these are at once the smallest, the most active, and the fullest of vital energy. When poised in the air their wings are invisible, owing to the rapidity of their motion, and when startled they dart away with the rapidity of a flash of light. Such active creatures would not be an easy prey to any rapacious bird; and if one at length was captured, the morsel obtained would hardly repay the labor. We may be sure, therefore, that they are practically unmolested. The immense variety they exhibit in structure, plumage, and color, indicates a high antiquity for the race, while their general abundance in individuals shows that they are a dominant group, well adapted to all the conditions of their existence. Here we find everything necessary for the development of color and accessory plumes. The surplus vital energy shown in their combats and excessive activity, has expended itself in ever-increasing developments of plumage, and greater and greater intensity of color, regulated only by the need for specific identification which would be especially required in such small and mobile creatures. Thus may be explained those remarkable differences of color between closely allied species, one having a crest like the topaz, while in another it resembles the sapphire. The more vivid colors and more developed plumage of the males, I am now inclined to think may be wholly due to their greater vital energy, and to those general laws which lead to such superior developments even in domestic breeds; but in some cases the need of protection by the female while incubating, to which I formerly imputed the whole phenomenon, may have suppressed a portion of the ornament which she would otherwise have attained.

Another real, though as yet inexplicable cause of diversity of color, is to be found in the influence of locality. It is observed that species of totally distinct groups are colored alike in one district, while in another district the allied species all undergo the same change of color. Cases of this kind have been adduced by Mr. Bates, by Mr. Darwin, and by myself, and I have collected all the more curious and important examples in my address to the Biological Section of the British Association at Glasgow in 1876. The most probable cause for these simultaneous variations would seem to be the presence of peculiar elements or chemical compounds in the soil, the water, or the atmosphere, or of special organic substances in the vegetation; and a wide field is thus offered for chemical investigation in connection with this interesting subject. Yet, however we may explain it, the fact remains of the same vivid colors in definite patterns being produced in quite unrelated groups, which only agree, so far as we yet know, in inhabiting the same locality.

Let us now sum up the conclusion at which we have arrived, as to the various modes in which color is produced or modified in the animal kingdom.

The various causes of color in the animal world are, molecular and chemical change of the substance of their integuments, or the action on it of heat, light or moisture. It is also produced by interference of light in superposed transparent lamellæ, or by excessively fine surface striæ. These elementary conditions for the production of color are found everywhere in the surface structures of animals, so that its presence must be looked upon as normal, its absence as exceptional.

Colors are fixed or modified in animals by natural selection for various purposes; obscure or imitative colors for concealment — gaudy colors as a warning — and special markings, either for easy recognition by strayed individuals, females, or young, or to direct attack from a vital part, as in the large brilliantly-marked wings of some butterflies and moths.

Colors are produced or intensified by processes of development,— either where the integument or its appendages undergo great extension or modification, or where there is a surplus of vital energy, as in male animals generally, and more especially at the breeding-season.

Colors are also more or less influenced

by a variety of causes, such as the nature of the food, the photographic action of light, and also by some unknown local action probably dependent on chemical peculiarities in the soil or vegetation.

These various causes have acted and reacted in a variety of ways, and have been modified by conditions dependent on age or on sex, on competition with new forms, or on geographical or climatic changes. In so complex a subject, for which experiment and systematic inquiry has done so little, we cannot expect to explain every individual case, or solve every difficulty; but it is believed that all the great features of animal coloration and many of the details become explicable on the principles we have endeavored to lay down.

It will perhaps be considered presumptuous to put forth this sketch of the subject of color in animals, as a substitute for one of Mr. Darwin's most highly elaborated theories — that of voluntary or perceptive sexual selection; yet I venture to think that it is more in accordance with the whole of the facts, and with the theory of natural selection itself; and I would ask such of my readers as may be sufficiently interested in the subject to read again chapters xi. to xvi. of the "Descent of Man," and consider the whole theory from the point of view here laid down. The explanation of almost all the ornaments and colors of birds and insects as having been produced by the perceptions and choice of the females has, I believe, staggered many evolutionists, but has been provisionally accepted because it was the only theory that even attempted to explain the facts. It may perhaps be a relief to some of them, as it has been to myself, to find that the phenomena can be shown to depend on the general laws of development, and on the action of "natural selection," which theory will, I venture to think, be relieved from an abnormal excrescence, and gain additional vitality by the adoption of my view of the subject.

Although we have arrived at the conclusion that tropical light and heat can in no sense be considered the cause of color, there remains to be explained the undoubted fact that all the more intense and gorgeous tints are manifested by the animal life of the tropics, while in some groups, such as butterflies and birds, there is a marked preponderance of highly-colored species. This is probably due to a variety of causes, some of which we can indicate, while others remain to be discovered. The luxuriant vegetation of the tropics throughout the entire year, affords so much concealment, that color may there be safely developed to a much greater extent than in climates where the trees are bare in winter, during which season the struggle for existence is most severe, and even the slightest disadvantage may prove fatal. Equally important, probably, has been the permanence of favorable conditions in the tropics, allowing certain groups to continue dominant for long periods, and thus to carry out in one unbroken line whatever developments of plumage or color may once have acquired an ascendency. Changes of climatal conditions, and pre-eminently the glacial epoch, probably led to the extinction of a host of highly-developed and finely-colored insects and birds in temperate zones, just as we know that it led to the extinction of the larger and more powerful mammalia which formerly characterized the temperate zone in both hemispheres. This view is supported by the fact that it is amongst those groups only which are now exclusively tropical, that all the more extraordinary developments of ornament and color are found. The local causes of color will also have acted best in regions where the climatal conditions remained constant, and where migration was unnecessary; while whatever direct effect may be produced by light or heat, will necessarily have acted more powerfully within the tropics. And lastly, all these causes have been in action over an actually greater area in tropical than in temperate zones, while estimated potentially, in proportion to its life-sustaining power, the lands which enjoy a practically tropical climate (extending as they do considerably beyond the geographical tropics), are very much larger than the temperate regions of the earth. Combining the effects of all these various causes we are quite able to understand the superiority of the tropical parts of the globe, not only in the abundance and variety of their forms of life, but also as regards the ornamental appendages and vivid coloration which these forms present.

A. R. WALLACE.

From Good Words.

DORIS BARUGH.

A YORKSHIRE STORY.

BY THE AUTHOR OF "PATTY."

PROLOGUE.

CHAPTER I.

SWINGING ON A GATE.

THE day had been full of mist, a soft white veil clung to the side of the steep hill, and blotted out the village straggling up from the river below to the old grey church with its low crenellated tower and screen of tall fir-trees, standing on the skirts of the moor, five hundred feet above the valley.

This screen of old, thin fir-trees, set north and west within the loosely-piled stone fence that shut in the churchyard, gave a weird, haunted look to the spot.

It may be that this gaunt weirdness, for beyond the thin, outstretched fir-arms the moor spreads for miles in a barren level, has fostered the superstition that still hangs over Burneston; but even nowadays there are ghost-stories about Burneston Hall — the grey old manor-house in the valley below — stories which tell how the wife of the last Burneston of Burneston walks up and down, up and down the terraces beside the river, mourning her sin and her sorrow.

To-day even, there is something chilling and mysterious in those tall, thin fir-trees looming above the mist, as if trying to keep sight of the long range of pale grey hills across the valley.

Mr. Burneston, the present owner of the Hall, had come up through the mist from the old grey house beside the river to call at the parsonage, but he had not taken the steep way through the village, there was a nearer way by the avenue, and now as he stood looking at the church and its screen of weird trees, he was opposite Farmer Barugh's pig-yard. The white gate was open just now to admit seven fine, brown cows, breathing fragrance as they passed, and Mr. Burneston went through it whistling. One could see that the mist had not depressed his spirits, he looked very bright, very happy, and though there was an ease in his movement that betrayed carelessness, he looked like a well-bred, kindly English gentleman. He went on past the range of cow-stables, then through a rick-yard where a few empty stone posts seemed waiting for the coming harvest, and suddenly came in sight of the gate which led to the glebe field, a swelling green croft high above the white gabled parsonage below.

A girl, dressed in a lilac cotton frock, with short sleeves, a long, buff-striped pinafore, and a white sun-bonnet, was swinging on the gate. Her back was towards him, and her head was hidden by her sun-bonnet. She did not hear his footsteps, and she went on singing to herself in a sweet voice.

She made such a pretty picture there, with the background of golden starred meadow, that instinctively he stood still, and these words of her song reached him: —

> May it so happen, an' may it so fall,
> Ah may be lady of Burneston Hall.

He had been smiling as he looked at the careless grace of the girl's attitude, but as she ended the smile broadened, and he burst out laughing.

The girl started, looked round, and then jumped down; her sun-bonnet fell back as she reached the ground. Mr. Burneston saw the loveliest little face he had ever seen in his life. Large, blue-grey eyes gazed at him in bright terror from under delicate, finely-marked brows, shadowed by a frizzled crop of brown hair, which straggled over her forehead, but did not hide its beauty; the red lips were parted with the sudden alarm, but the nose and chin were so delicate, yet so firm in their outline, that they might have belonged to an ancient statue. A bright, deep blush spreading over her face and throat wakened Burneston from his sudden enchantment.

"I beg your pardon," he said, as if he were speaking to an equal; "but where do you come from?"

It had all happened too quickly for words to render — before his sentence had ended the girl snatched at the strings of her sun-bonnet and fled past him like a bird on the wing.

Mr. Burneston's blue eyes followed her till she disappeared, and he stood staring till two huge geese came and hissed at him.

Then he rubbed his hands across his forehead, and looked about as if he had had a sudden awakening.

"Good heavens, I never saw any one like her; where can she come from?"

Philip Burneston was easy-going, but he was an only son, and had early been his own master; he was accustomed to have his orders obeyed and his wishes gratified at once. He was impatient to know who the girl was, and he came back into the

farmyard, and turning his back to the church, looked at the farmhouse, which showed through wreaths of brown and golden apples above the low stone wall.

"I cannot ask there," he said, "they are almost strangers, and the girl may belong to them."

On the other side of the road which ran down-hill past the churchyard and the large white gate of the farm, were two stone cottages with thatched roofs and low broad lattice windows, and over the door of one of these, making a frame of graceful foliage, stirred now by the breeze that was lifting the mist, was a large-flowered white convolvulus.

Mr. Burneston crossed the road, tapped at the door of this cottage, and raised the latch. The inner door was opened by an old woman, her head and hands shaking with palsy; but she smiled when she saw Mr. Burneston.

"Ay, ay, sir, ye mun coom in," she spoke heartily, "an' sit ye doon. An' how's yersel', Maister Burneston, an' how is t' wi' t' yung maister? It's long sin fooaks seed yer face oop here."

Mr. Burneston had to stoop as he went into the neat, exquisitely clean little room. The fire-irons and the steel fittings of the oven shone as if they were not meant for use, the walls and heavy-beamed ceiling were of chalky whiteness, in one corner was an old oak press with glistening brass handles, and in the other corner a triangular cupboard, the red Indian lac door brass-mounted, and through this half-open door showed treasured old china cups and saucers, and plates, and even a blue and white teapot on a high shelf.

"Well, how are you, Mrs. Duncombe? And how is Rose, eh?"

The old palsied head shook more than ever. "Ah'se as hard o' heearin as ivver ah war; howsomivver, if ye'll bide here a bit, ah'll just gan an' call t' laahttle lass. Rose, Rose, coom here."

There stole in from the back door a little girl with a round saucy face that in a minute was suffused with a blush of pleasure and shyness at sight of the visitor. Rose's tawny hair, with occasional tinges of red, was brushed smoothly behind her ears, and her fair, freckled skin looked scrupulously clean and well kept; but there was something disorderly in the expression of her yellow-brown eyes, her small turned-up nose, and her full parted lips. She was very plump, and looked much younger than she really was.

"Why, Rose, when are you going to grow?" Mr. Burneston always had kind words for the little village girls, provided they were pretty. He pinched the child's blushing cheek: "you must grow tall as well as broad, little woman."

Rose's eyes drooped at the implied reproof. She thought the want of rapid growth must be caused by her own idleness, and she sighed heavily.

Her grandmother could not hear the sigh, but she noted the confusion of the downcast face.

"Mebbe it's aboot t' sewin', eh, Rose lass? Ain't ah allays tell'd thee as thee'l nivver mak a decent stiddy lass wiv'oot thou sticks te t' needle? Mebby thee'l be bud a poor shiftless thing as lang's thee lives."

At this picture of the possible result of laziness Rose's full pouting lips quivered, her cheeks puckered, and from the closed eyelids came a shower of tears.

Mr. Burneston's bright, frank face clouded in a moment.

"Oh, don't scold her, grannie," he said in a suffering voice, as if some one had wounded him keenly; then bending over Rose, he said tenderly, "There, there, my dear, don't you cry, grannie doesn't mean it, I'm sure you're a good girl; come down to the Hall, and Mrs. Emmett shall give you a pot of jam."

Rose looked up through her tears with a loving reverence that struck Mr. Burneston, though his mind was full of some thing else. "How fond that child must be of jam!" and somehow he felt less pity for Rose.

He put his lips close to Mrs. Duncombe's ear.

"Have the Barughs, those new people at the farm, any family?" he said.

The shaking old head nodded as if it meant to roll off.

"Ay, ay, t' missus, Dorothy her man calls her, cooms ov a better sort o' fooak an ther is aboot here, ah reckon. Fooalks sez as sheea cooms frae t' south, an' 'er fayther 'ad lots o' brass. Neea, bud it wad be a coom doon i' life fer sike as sheea te wed wiv a mon like John Barugh. If ah ain't gaumed reeghtly, ye mun axt' laahttle lass fer t' rest o' t' teeal."

The increasing impatience in her listener's face had shown Mrs. Duncombe that she was answering wrongly.

"Are there any children at the farm, Rose?" he said abruptly.

The soft-hearted child felt the change in his manner, and she blushed with pain. She who worshipped the ground the squire walked on had managed somehow to be all wrong with him in this visit.

"There's a lass an' a lad."

"And how old are they? Is the girl, for instance, older than you, and — and what like is she?"

The change in his voice made the girl look up, and Mr. Burneston reddened as he met her questioning eyes.

"Thea call t' lad George, an' he's a reet nice un, he is, an' he's goin' thirteen, an' he plays wi' me," said Rose; "bud t' lass is nae better an if sheea'd lost her tongue. Sheea's bigger nor me, an' as fer her 'air it's nivver tidy like, an' sheea deean't play. George sez as sheea's fair daft."

In her bias against Doris she spoke eagerly, quite forgetting her shyness, and Mr. Burneston felt a sudden dislike to Rose Duncombe.

"Ah," he said carelessly, and then he stood thinking — it was useless to question the old woman, she could not hear a word.

"Well," he nodded, "good-bye, Mrs. Duncombe. Be a good lass, Rose, and mind your sewing, or else when you're old enough to get a husband you won't be able to mend his stockings."

The old woman nodded repeatedly, but Rose did not curtsey, she stood with her fat fingers clasped together over her lilac pinafore, watching Mr. Burneston with rapt, loving eyes; he had spoken to her again with a smile, and every word was treasured in her warm little heart.

"If ah sud try fer te please my man as ah try t' please t' maister," she thought, "why then ah mun be able te do t' sewin' o' all sorts."

People talk sentimentally of the sufferings of worms trodden on heedlessly, of birds robbed of their young; very few have pity or sympathy for the unrequited love of children or of ugly or unattractive men and women. I say this advisedly, for ugly people are often gifted with extraordinary power of attraction. Perhaps much of this want of sympathy comes of unconsciousness; for people are less conceited or conscious of the love they win and slight, than of their personal gifts or intellectual acquirements.

Certainly Philip Burneston had no consciousness of the warm love that lay nestling for him in little Rose's heart.

Her words had stung him; he felt sure that the rough-headed daughter of Farmer Barugh must be the vision of beauty he had seen on the gate, and it jarred him that this mere village child, Rose, should speak as if the girl were her equal.

He stood facing the farmyard, and then he turned so as to front the steep descent on each side of which lay the village. The mist had lifted and revealed the opposite side of the valley, with plots of golden corn-land, some with shocks ready for carrying; with green strips of meadow here and there, and darker lines of green hedge dotted with trees. Beyond came a long stretch of woodland, then as the land rose towards the point where the sun was just about to sink behind the hills, the corn was glittering gold and the meadow gleamed emerald against dark fir-woods. Beyond all, rose the purple brown of the moor, cresting the long range of hills, purple almost to blackness as after a few minutes the sun sank into the leaden clouds that bordered the horizon.

The river which ran through the valley, and the Hall with its circling woods were not visible from where Mr. Burneston was gazing, the hill was so steep; and yet he seemed to be searching for his home as he stood looking so fixedly down the winding road with stone cottages on either side, some of these mounted so high on grassed banks above the road that they were reached by quaint flights of broken, time-stained stone steps.

Mrs. Duncombe had shut her door. Rose in a sudden and virtuous impulse had brought out a checked duster, and was hemming, with her eyes fixed on her needle. No one was looking at Mr. Burneston while he stood first rapt in thought, and then amused by his own hesitation.

He could not make up his mind to go home till he had had another vision of that frizzled head and the exquisite face belonging to it.

"I have not called on these people yet," he said, "and it is the right thing to do."

He pushed the gate open and crossed the yard diagonally from right to left, passing by the horse-pond which was near the road in the extreme left-hand corner, and in which four black and white ducks were dipping and splashing as if they thought water more invigorating when in motion.

There was a small gate in the furthest corner of the yard, almost hidden by apple boughs pendent from their weight of russet fruit, and through this gate Mr. Burneston entered the small, trim garden, showing few flowers on its neatly-raked brown borders, except tufts of monkshood and coral plant and some pink blossoms on the blue-green thrift border.

The door stood open, the squire knocked, and then stood waiting.

Mr. Barugh was a new tenant, and was therefore a new feature in Burneston: all the other inhabitants had been born in the village.

These new tenants had come into the Church Farm while Mr. Burneston had been travelling, and as yet he had only exchanged greetings with Mr. and Mrs. Barugh.

"George, lad, ther's yan at t' deear," a deep voice said from within; "thee mun gan an' see wheea's theer."

There was a door at the end of the passage, and one on each side, and the doors and walls were all painted buff and yellow.

A brown-eyed, pleasant-faced boy opened the left-hand door, and came out into the passage. He looked very shy when he saw the visitor.

"Mayhap it's t' squire," he said over his shoulder.

There was a momentary pause, and then a tall, powerful-looking man, with heavy red eyebrows and bushy red whiskers, appeared at the door.

"Nay, nay, Mr. Burneston, coom in, an' welcome," he said, awkwardly hitching one shoulder a little above the other, and holding out an enormous, but well-shaped red hand. "T' missus an' ah'se reeght pleased te see ye, that we is. Weean't ye sit ye doon?"

Mr. Burneston looked round eagerly, but as he entered there was only one person in the low-roofed room, and she was rising with evident difficulty from a couch placed beneath the long low window. He started forward at once.

"Please don't get up, Mrs. Barugh. I'm afraid I have disturbed you. I am very sorry. I did not know you were ill."

While he spoke his eyes were dazed with the faded likeness in the wasted, delicate face; it was as if he got here and there a faint trace of the beautiful vision he had seen on the gate, but it was all misty and uncertain. Mrs. Barugh looked very sickly; she wore a cap with lilac bows, and she was wrapped in a faded yellow crape shawl; but she must have been once a lovely woman.

She took the squire's proffered hand, and then pointed to a chair near her sofa, with an ease that surprised her visitor, accustomed to the stiff awkwardness of his other tenants on such occasions.

"Sit ye down, John." There was a mixture of pity and of irritation in her voice, and the big man started at the summons, but as he passed her on his way to the fireplace she frowned at him till her delicate brows met.

Mr. Burneston was amused; there was no real ill-temper in Mrs. Barugh's face, she seemed to regard her husband as a performing dog who was not going through his part correctly.

"You have very delicate health, I am afraid," he said; "but I hope you like Burneston."

John Barugh had been standing like a stone block beside the large open hearth, where a few charred logs were burning feebly; at this question he turned to answer, without a trace of his first shyness, —

"Sheea wur fairlings weel — fair eneugh while we coomed oop here; bud it's ower cauld, or sheea's too silly, mair's t' pity. T' stock throddens weel, an' George, t' lad ther, is as cobby as sud be."

"I'm very sorry to hear this of your wife. We always reckon the hill so healthy; even down at the Hall, where, as you know, the river goes almost round the house, the air is considered excellent."

"Perhaps it's not owing to the air" — Mrs. Barugh's voice was so soft and pleasant that it was a pity she minced her words — "but I'm so dull, Mr. Burneston; there's no kind of society to be found hereabout."

Mr. Burneston looked puzzled, and John Barugh gave an uneasy laugh.

"Confound it, yon word society'll dua fer ye sum fahne dav, ah'se thinkin', Dorothy. Neeghbers ther' is, an' plenty, ah tak' it."

"Oh yes, there's neeghbers." Mrs. Barugh's lips curled with the scorn her gentility repressed.

John went on as if he had not heard her.

"What neeghbers is gude fer," he said, in his strong mellow voice, "is te hev sum fooaks te speeak tiv besides thae i' yer own hoose; else a man mud get taken up ower metch wi' his own doin's; besides, a mud find a chance o' helpin' whoor help's needful. One neeghber's as gude as annuther te ma thinkin'."

Mrs. Barugh drew her faded yellow shawl closer together, and then shrugged her thin shoulders, wondering how she ever could have thrown herself away on John Barugh.

"Well, not quite that, John, but every one can't think alike; an', besides, there are the children to be considered — they must have playfellows."

Mr. Burneston smiled at George, who had stood close by the door, with both hands in the pockets of his brown trousers; his eyes were fixed on a half-open book on the table. He was wondering at

that moment if it would be manners to go back to "Robinson Crusoe."

"I suppose that fellow goes to school somewhere," said Mr. Burneston.

One of John Barugh's shoulders rose higher than its fellow.

"Ay," he said uneasily.

The mother broke in eagerly. "Yes, Mr. Burneston, we have sent George to a fairly good school, for a small school, that is to say; but the master says there's somethin' wrong with the lad, an' that if he studies like the rest mebby he'll grow crippled."

"Skeealmaisters has their notions as weel's ither fooaks," said John grimly.

"Such nonsense," sighed the mother.

"So you're turned out to grass for a time, eh, my lad; and you haven't got a brother to help you into mischief?"

George fixed his large, languid brown eyes on Mr. Burneston. "Ah'se getten Doris," he said, "an' ther's Rose Duncombe; sheea's as gude as a lad."

A faint tinge of color came into his mother's pale face.

"There's a specimen of what I meant jist now, Mr. Burneston. How can I like my children to play with a gurl who runs wild like little Rose? They gets to speak like she do, an' I've tried hard to make Doris speak properly, an' now she's gettin' to speak like Rose."

"How old is your daughter? Is she at home?" He was growing impatient to see Doris.

"Doris is goin' fifteen, Mr. Burneston, but she doesn't look so old, though she's tall. George, go fetch yer sister."

George shook his head.

"Doris'll none coom. Ah axed her a while syne, an' she sed ah wer t' say if they axed fer her, she'd bide wi' t' bees."

John Barugh looked wrathful, and moved towards the door, but Mr. Burneston rose.

"Never mind, never mind. I shall find her in the garden," he said. "I know my way to the beehives." Then, bidding good-bye to Mrs. Barugh, "I wish I could make the place pleasanter for you," he said, "but I hardly know how. The housekeeper, Mrs. Emmett, shall come and see you if you like; she is a very clever woman, though perhaps not much of a companion."

Mrs. Barugh looked vexed.

"I am obliged to you, Mr. Burneston. I shall be extremely happy to see *you* whenever you like to call."

As soon as the door closed on Mr. Burneston and her husband she fell back on the sofa.

"There's nothing but disappointment in this life," she said. "I did think, whenever I saw the squire, that he would understand and see for himself I was not a ordinary person. Depend upon it, George, there's been some low marriage in the family some time or another, or a gentleman like that would never so forget himself as to recommend a housekeeper as companion for me. Why, George, lad, what ails ye? Why d'ye go white in that way and niver speak a word?"

She spoke irritably, but she rose up swiftly, as if nothing ailed her, and put her arm round the boy. He had turned a sickly white, and stood shivering, as if he were going to fall.

At first he clung to his mother, glad to let his head sink on her bosom, but next minute he raised it.

"Nay, nay, mother, deean't — thee'll hurt theesel'. Fayther'll be here soon." A groan, and then he fainted, just as his mother had drawn him close to a low chair, on which he fell seemingly lifeless.

CHAPTER II.

DORIS.

"BEES is fond things," said Doris; "they'se rare an' clivver, so they mun know how t' mak some sort o' change i' ther lives. Jist to think o' goin' on year after year, allays doin' t' same things, livin' on i' t' same house, wearin' t' same lilac pinny, an' warkin' hard all t' time. Weel, that's t' best part; wark's some fun when it ain't darnin' socks; if poor mother cud wark as she used, she'd hev somethin' to think on, she wadn't be so hard on fayther."

Doris paused, and looked round to see if there was any work to be done near at hand; and all at once a frown, so like her mother's, knitted her delicate brows, and her firm lips pouted with vexation.

"Fayther's i' t' reeght; Josh is a lazy gude-for-nought; he've gathered in t' beeans an' left t' stalks liggin. Howivver, ah'll soon fettle 'em."

She had been standing, sun-bonnet in hand, in front of the beehives at the end of the house farthest from the yard — a very quiet corner with a herb-garden in front, and a plot of beans and artichokes behind. High above this garden was a screen of leafy ash-boughs, but there were no near trees to shade the sun from the busy bees, or the loveliness of Doris Barugh. She had recovered from her fright.

There was no color on her transparent skin, except that of youth and health. Her eyes had kindled as she spoke, and glowed deeper in color — a color that it is hard to define; there was blue in it, and green, grey, and yellow. Perhaps the eyes looked darker than they really were, from the long dark lashes above and beneath — darker even than her eyebrows, though these were a shade darker than her hair, and the hair would have looked darker brushed flat like Rose Duncombe's, instead of curling at its will over her head, gilded by the sunlight.

As she stood erect and thoughtful, it seemed that Doris was faultless. She wanted color, perhaps, but then color would have marred the spiritual tone of her beauty. At first sight she might have been likened to Undine, an Undine with brown hair and grey eyes, but the chief attributes of Undine, her love and her humility, were wanting in this fair English child. Poor Undine would not have met her hapless fate had she had the broad thoughtful forehead and the firmly chiselled lips and chin of Doris. A fault might have been found with the size of her head; it was too small, and something in it spoke of narrowness. Also there was a certain stiffness in her gait. But no eyes looking at the girl could thus have judged her; her beauty would have blinded all criticism.

Just as her father and Mr. Burneston came up the walk, she set her sun-bonnet firmly on her head, and stepping behind the beehives, began to drag the bean-haulms into a heap.

"Where's t' lass?" said John, but Mr. Burneston put his hand on his arm.

"Don't frighten her, or she'll run away." He hardly knew what he said, he so feared this lovely apparition would again take flight.

John chuckled inwardly.

"What would t' missus say if she knawed as Doris fettled t' beean-stalks, an' t' squire theer an' awl?"

A tawny-colored dog with short legs, a sort of mongrel Dandie Dinmont, came running up the walk, barking at two white pigeons which hovered near the eaves of the farmhouse. Doris looked up quickly, and the dog ran towards her, its bark changing into a joyous cry of welcome.

She stood, her arms full of bean-stalks; dumb with surprise and shame; her sweet face aglow with blushes.

"Set 'em doon; 'at 'll do, lass. Sheea's a rare 'un, sheea is, fer fettlin' owt 'at's nut dirty wark," he said proudly to Mr. Burneston. "Coom, coom, Doris, an' speeak t' squire; it's reel kind on him, it is, t' hev coomed an' hev a chat wi' t' mudher."

By this time Doris had mastered her longing to run away. She still longed for any sort of screen to hide herself from the master of Burneston, but as there was none to be had, she strove to seem cool and unconcerned, though she could not raise her eyes to his face. She curtsied awkwardly, but he held out his hand, and she put her trembling, clammy fingers into his warm clasp. Philip Burneston did not notice the chill touch of the frightened fingers; his eyes were fixed on the girl's downcast face, as if they could not get away; some power, he could not tell what, some magic had bound him to the sway of the slender, unformed creature standing there in her lilac frock and white sun-bonnet, so utterly unconscious of the spell she was working, that she longed to unloose her hand and run away before the squire should recognize her as the girl he had seen on the gate.

Mr. Burneston let go her hand, but he did not speak. Perhaps he feared to spoil the effect of this vision of beauty by drawing out words that did not match the face and the unconscious repose which made the charm of Doris. She did not look humble and shrinking, as Rose Duncombe had looked, but rather as if her thoughts were occupied with matters of more importance than herself, or than that which passed around her.

"Are you fond of bees?" Mr. Burneston said at last.

She looked up in slight surprise. "Nay, ah'se nane so fond on 'em, but ah likes t' see 'em at wark," she said shyly.

The farmer had stood watching with pride the effect produced by his daughter's beauty. His wife, in her teens, had been to John Barugh's mind the fairest piece of womanhood his eyes had ever seen, when she came on a visit to some north-country cousins; and he had looked at her and looked at her market-day after market-day as if he fancied his eyes were magnetic, and would draw her to him unsought by words, till one day he found a neighbor also looking at fair Dorothy; then he roused himself to begin his own wooing in a manly and earnest fashion, and to his own surprise he succeeded. He saw that Doris promised to be fairer still than her mother, and with but little chance of admirers. The Burneston farmers had either young wives and young children, or

else they were old and childless. Even John, who shrank from his wife's notions about society and speaking proper English, had to own that there was no one in the village fit to be put beside Doris or George. It was a triumph to see a real gentleman like Mr. Burneston so struck by the child's good looks.

"Ay, bud t' lass diz like te see t' wark done, let t' wark be done by whom t' will. Ah tells her sheea wur made te be t' maister; sheea'd keep us all in order, 'at sheea wad, bless her."

"Faythe r!" Doris spoke reprovingly, and then, as her long thin arms fell straight on each side of her, she clasped her hands firmly, and wished the visitor would go.

He asked a few questions about the bees, but Doris let her father answer. Mr. Burneston was unable to find an excuse for remaining, though he tried; he could not stand there gazing silently, though the contemplation of her face made him strangely unwilling to talk.

"Perhaps," he looked at Doris, "your mother might like some books to read; there are plenty of story-books at the Hall. Shall I send some up?"

"Thank you kindly, sir." She flushed a little. "Mother does like books, but she's none so set upon tales as upon them 'at is more graver like; you know tales is nobbut fond stuff."

Mr. Burneston laughed, and the angry color rose to the girl's forehead.

Why was he laughing at her?

"I rather like story-books," he smiled at her. "Good morning, but I will not forget what you say; good day, Mr. Barugh." He looked at his watch. "I am too late for the parsonage now, and I shall be late for dinner."

John Barugh went with his visitor as far as the outside gate, and then stood looking after him as he went down the steep village, which straggled nearly a mile in length from the top of the hill to the river below.

"He's a nice chap yon," said John, "as pleeasant-lookin' a chap, an' as free-speeakin' too, as ah've knawn, so ther." He said this aloud, slowly and emphatically, to an audience of black, short-legged pigs, and then went back to Doris and the beehives.

She had not wasted her time in thinking of the squire. The bean-stalks were piled up in a heap, and the ground on which they had lain was raked into order. And now she stood resting while she watched the bees.

"Weel, my lass!" her father put his broad red hand on her shoulder, "an' what's thee think o' Mr. Burneston, an', Doris, lass, what made thee so shy-like wiv 'im?"

Doris still felt sore and angry, and she did not know on whom to vent her anger.

"He's well eneaf, ah suppose, but he's nut like wersels. Ah wer shy," she forced herself to speak out, "because — because ah'd seen him afore. Seest 'ee he fun me singin' fond stuff on t' gate."

She hung her head, and tears came into her eyes.

"Deean't freeat aboot that, my lass," the farmer said kindly, "ah'd warrant thoo'se not t' first lass 'at he's heeard singin' fond stuff afooar; let's hear t' fual sangs, Doris."

"Oh, faythe r, t' wer ower fond!" She had broken down at last as the full remembrance of the scene at the gate came back, and she was crying in earnest. "He mun think me such a poor, fond lass," she sobbed, "he'll nobbut laff at me. Joseph Sunley has a tale of a lass 'at went fond an' deed, an' a' fer t' maister o' Burneston, an' she had a feeal's sang, an' a feeal's rhyme."

John Barugh looked puzzled and inquisitive, but he understood Doris too well to question her further. There was that kind of implicit unspoken trust between this father and daughter which often exists between people who never to one another expand into acts of tenderness. I say acts, for, after all, tenderness receives its value from the character of its recipient; and perhaps the most intense tenderness towards some natures is to make them feel that thorough though unspoken trust is felt in them. Doris and her father seldom talked together, but they never quarrelled.

John knew at this moment that a smile, a word even, might at once put a seal on the girl's unwonted confidence, and he stood still, only turning his face into a yet more listening attitude.

"Ah wer swingin' on t' gate as Rose might a' done," Doris spoke, with strong contempt against herself, "an' ah sang t' same words as t' poor mad lass sang, as Joseph Sunley tellt me, —

> May it so happen, an' may it so fall,
> Ah may be lady of Burneston Hall.

John's lower jaw fell. He looked so utterly confounded that Doris laughed, spite of herself. He reddened at this and then recovered himself.

"Thee's i' t' reeght te laugh, Doris.

Thoo's little mair an a babby, an' it's as like as nut as Mr. Burneston heared na'er a word o' tha fond rhyme. Bud it's a feeal's rhyme for a' that, an' Joseph's a feeal te go learnin' thee such a rhyme."

"Joseph didn't learn it me, fayther. He said it once, an' then ah couldn't get it out o' my head. Ah says it over an' over again," she said angrily.

"Weel, nivver freeat theesel' aboot 'un; theer's neean harm." John felt uneasy, though he tried to hide it. He was wondering what Dorothy would think of this adventure. "Nivver freeat theesel' aboot un, lass; thoo may be seer Maister Burneston heerd nowt on it."

He did not look at Doris, but her eyes fixed on him with a hard scrutiny. It was difficult to believe that such eyes, so full of sweet reflection, could concentrate their expression into such hardness. Then, as her father turned his back and went slowly and heavily towards the house, the girl said to herself,—

"Fayther forgets how old ah is when he puts me off like a babby. Wheeah! Mr. Burneston heared ivvery word o' t' rhyme, ah'se sure o' that; an' it wer reeght doon cruel o' him to coom an' find me out."

She pulled at the strings of her sun-bonnet with each hand, and walked indoors with even more dignity than usual.

CHAPTER III.

THE SHADOW OF A PURPOSE.

SOME one has said that you should never judge of men and women till you have seen them at home in the familiarity of domestic life, where all the angles of their characters are in broad light, and where these reflect and refract prism-wise the various influences brought to bear on them directly by tempers and tongues of near kin, as they stand unprotected by any of the blinds and shields which the reticence and ignorance of strangers make for them when abroad.

Till his marriage Phillip Burneston had never suffered from any domestic contradictions. He was the only child of loving parents, who died before he was twenty, and though he then spent a short time at Cambridge, his health as a boy prevented him from learning discipline and self-control at a public school, or at least did not give him the opportunity of learning it. And yet his natural gentleness kept him from any headstrong or self-willed measures when he came into the management of considerable property.

He married at twenty-two the wife assigned him by family arrangements ever since he and Miss Beaumont had been twelve years old, and he had made an irreproachable husband.

The first discipline of life came to him in those nine years of marriage. Mrs. Burneston was very elegant and fashionable, very shallow, exacting, and affectionate. In all larger matters, such as expenditure, place of residence, choice of friends, disposal of time, her husband soon found domestic peace was only to be had by submission, and as human nature must ordinarily, with regard to its fellows, have some compensation for self-sacrifice, this submission, so long unknown to his life, had for compensation a quality also hitherto undeveloped — a determined obstinacy about his own special fancies.

At the end of nine years Mrs. Burneston died, leaving a little boy of eight years old, and a great blank in her husband's life. She had been his occupation rather than his companion, but she had so often asserted her love for him, that it would have been impossible to the loving, gentle-natured man to disbelieve in it — to realize that love is an active rather than a passive quality. He would have been indignant to learn that his wife had died with a falsehood on her lips — unless, indeed, mere fidelity and lip-assurance constitute love.

The sensation of freedom was, therefore, alloyed with a sense of loss, and for two years he had wandered about aimlessly, his wife's dislike to foreign travel having kept him from much that he willed to examine, and during this time he had come home only to get occasional and brief glimpses of his boy Ralph, left ostensibly to the devoted care of Faith Emmett, the housekeeper of Burneston, and to the guardianship and tutorship of Mr. Spencer, the vicar. In reality, Ralph had been left free to exercise his own small despotisms on all who came in contact with him.

Mr. Burneston was an archæologist, and though he often had with him a companion sympathetic in the matters of stonework and stones, yet of late he had felt a new discontent, a longing for some more human interests, and on his return from a long Scandinavian excursion he had announced his intention of settling down for a year at least at Burneston.

The villagers smiled at this announcement, and Faith Emmett laughed in the bailiff's face as he made it.

"Mr. Burneston hev nivver stayed three months at once at t' Hall sin' I knawed

it," she said scoffingly; "it's nut t' place te suit a lively gentleman. Just t' little she did see o't wur the death o' t' poor lady — it fair gi' her t' horrors, poor soul."

But the butler, Benjamin Hazelgrave, an old servant of the Burnestons, was sternly indignant when he heard of Faith's prophecy.

"Mistress Emmett sud knaw," he said loftily, "that the gentlemen of Burneston are nane fond, like silly wimmin, an' it does nut become one taken fra t' other side o' t' country, an' slipped in as laady's favorite ower awder heads than her own, to be talkin' o' t' maister as if he wur lahk herself."

This he said at, not to, Mrs. Emmett, and then treated her with scornful silence, it being a sore point with Mr. Benjamin that his own wife, the cook at Burneston, should have had Mrs. Burneston's maid and nurse, Faith Emmett, an entire stranger, set in authority over her as housekeeper.

Faith was right, however, about the aspect of Burneston Hall. It was very weird and dreary; a heavy mass of grey building which, on closer inspection, took the shape of an E, two wings projected towards the river, and in the centre was a shorter projection; between this, which formed the back entrance, and the river came a smooth lawn swept by drooping cedar branches in the centre, and at the sides by low-growing beech-trees, so closely set that even from the meadow, planted like a park, on the other side of the river only occasional bits of the grey house and its upper lattice windows could be seen. The river ran swiftly and darkly past the low wall, which formed a long semicircular terrace with here and there willow-trees bathing deeply in the water, and giving a weird, damp look to the manor-house, especially in the dark corners formed by the ends of the semicircular wall, one of which was completely overshadowed by pendent boughs, while the other emerged from its mystery in a straight bit of wall, behind which, at a little distance, rose the lofty enclosure round the real entrance to the house and the stable-yard. Originally Burneston had been used as a shooting residence, and little pains had been taken either with the entrance or with the garden. Her husband's refusal to improve these had determined Mrs. Burneston's dislike to the place.

Just beyond the Hall, on the right as one faced the house, was a stone bridge with three arches, and through these the current swept strongly, the river broadening to nearly double its width on the farther side till there was room for a tree-covered islet in its midst. Beyond this islet was a narrow wooden bridge, and leading to this came the road down-hill from the church, with the village scattered along its sides; but the Hall was so thickly belted in with trees that no signs or sounds of human life reached it; even the smoke curling from the cottage chimneys as they mounted the hill was hidden away. It was just a place where ghosts might linger.

But at this moment, within the Hall itself, there is noise enough to banish all ghostly fancies. In the entrance hall, a square pleasant room with a Turkey carpet, painted glass windows, and old pictures, a tall slender woman is struggling with, and trying to pinion the arms of a fair-haired boy about ten years old. The woman's abundant white hair confined by a black net contrasted strangely with her long, deep-set, dark eyes flashing brightly with anger and excitement.

"Oh! you limb o' Satan!" she calls out amid the boy's outcries. "An' how dare you? It's none my fault, it's yer own, Master Ralph, if I say them words; it's yer conduct what makes me say 'em. Yer as brassend as Hector."

Ralph's blue eyes are bright with mischief rather than anger, and his face has got scarlet in his efforts to free himself; but at this he stands still, and laughs contemptuously.

"Oh, I like that, I do, you hardened old hypocrite! You know you're as glad as you can be to get a chance of using bad words, or they wouldn't come to your tongue so easily. Let go, I say, or I shall twist your wrists, and then you'll be sorry, you old marplot — I hate you!" he adds angrily.

Faith Emmett lets go of his arms at once, and drops exhausted into a high-backed cane chair. The flush leaves her face; she sits there grey and colorless.

Ralph, in his surprise, forgets his purpose, he stands looking at his nurse, and a sudden hush comes over the storm. Into this hush, startled by the previous clamor, comes Mr. Burneston from a doorway at the end of the hall farthest from the windows.

"Ralph, what are you doing? Is anything the matter with Faith?" for in an instant he sees the woman's pale face.

She rises at once.

"It's nowt. Master Ralph was playin', an'——"

"Hold your tongue, Faith, and don't tell stories to my father."

Faith turns paler still.

"Master Ralph," she says sadly, "that's nut t' way te speak te me."

"No, Ralph, it is not, and you ought to be ashamed of yourself." Mr. Burneston speaks in a vexed tone; he does not like the nurse's interference, and yet he cannot resent it.

"The long and the short of it is, father" — Ralph looks up coolly in his father's gentle face — "neither of us have been behaving at all. I wanted to shoot at Sir Marmaduke" — he points to one of the old pictures — "with my pop-gun — his nose annoys me — and Faith was goose enough to think she could hold my arms back and prevent me."

Ralph laughs, but looks uneasy when no smile comes on his father's face.

Mr. Burneston looks inquiringly at Faith, but she has seated herself again in the high-backed chair, as if the case were going to be tried before her. Seeing this, he raises his head slightly, and turns to the door by which he came into the hall.

"I want you in the study, Ralph." And he walks on, leaving the boy to follow.

But, instead, Ralph turns indignantly on the old woman.

"Bother you; why can't you hold your tongue? My father doesn't care what scrapes I get into and get out of by myself, but he hates to find me sparring with you. I know it by the look of him. Well, I'll just tell you what'll happen. He'll send me to school, and I'm not sure but what, after all, I sha'n't be jolly glad of it."

This was too much; he had said, "I hate you," he had accused her of telling a story, but to be glad to go to school! — she broke down into tears, though she struggled hard to hide her tears from Ralph.

He stood a moment, then he dashed up and gave her a kiss.

"Don't be an old silly, you'd much better go and make that toffy you promised me, than sit here crying."

"Gang, gang, maister Ralph, honey, gang quick, or yer papa will be mad wi' you." She choked down her sobs and smiled, as the boy nodded and ran away, and then she sat with her hands in her lap, frowning till nothing of her eyes was visible but the yellow light gleaming through her black lashes. She had a curiously-shaped face, so wide at the angle of the cheek bones that it seemed as if in infancy the forehead and chin had been pressed towards each other, and the loss of her front teeth had increased this nearness by shortening the space between nose and chin.

Her face was plump, though her figure was slender, but spite of this plumpness there was a stern, inflexible expression about the mouth, and an almost baleful glare from her eyes which did not impress one favorably.

She sat for some time clasping her bony hands and looking at them as if for counsel. At last she shook her head.

"Eh dearie me, an' how'll it ivver end, he'll nivver hev no beeans, he's all made o' gristle, he's as wake as a sneeze. That comes o' so much blood from t' south i' t' family. Ah'd liefer far hev seed him gang away stubborn, an' keep stubborn too, than get all in a moment like a bit o' silk with the creases smoothed out on't. Bud neeah, neeah, he'll be fierce as a buck-rat one minnit, an' t' nixt as soft as a dumplin'; no mair puppose in him than his fayther afore him, unless it's fer some folly or other, an' then if he wur te want t' moon he'd waste all t' brass as ivver he'd getten i' steers to reach it. Weel, so lang as ther ain't no new mamma brought heeame te vex him, mebbe he'll get on, bud 'at ud bring bad tiv us all, let alone Master Ralph, an' I misdoubt t' maister hissel'."

She rose up at the sound of footsteps, and it was surprising to see how quickly her vindictive look changed into a smile of welcome as she went forward to hold the door for the person who had opened it from the outside, and now entered the hall.

He was tall and thin almost to leanness; long dark lively eyes and the dark hair hanging over them gave him the appearance of a gypsy, and his slouched felt hat, threadbare coat, and patched boots, might have carried out this idea, but for the housekeeper's deep curtsy, and for that something about Gilbert Raine which made him look like a scholar and a gentleman.

He held carefully a fragment of dark-colored glass so frosted over with long interment that it was covered with prismatic tints; there were fragments of clay sticking to it, and Faith held out her hand.

"Where's Mr. Burneston, Mrs. Emmett?" He took no notice of her outstretched hand, but spoke in a quick, abrupt voice that seemed unused to contradiction.

"Maister's i' the study, sir; bud sha'n't I wash that for ye, Mr. Raine? It ain't fit to tak indoors, it ain't."

Raine pressed the precious relic against his coat.

"Wash it, indeed — no, thank you, Mrs. Emmett — I haven't quite forgotten the scrubbing you gave to my terra-cotta Latona and the mural frescoes you took care of for me last year. Ah, you want a month's training at Austin's End, you do. I expect you'd like to polish my brazen shield there, and send a good deal else to the dusthole." He laughed and went out to the study with his relic. "She can't help being a woman," he said to himself, "and women's ideas are confined to decorating their persons, and cleaning all that doesn't want cleaning."

He found Mr. Burneston alone. Ralph had been dismissed with a lecture.

"Look here, Phil, I was just digging beneath the wall of the fruit-garden, where that bit of brick turned up the other day, and I found this." He paused, for Mr. Burneston looked up with only a sickly smile. "Is anything the matter?" said Gilbert Raine, with a sudden change of tone.

Philip Burneston pressed his hand on his forehead.

"Well," he tried to laugh, "I suppose I ought not to have stayed away, and then all these minor miseries would have been such a part of my existence that I should not have minded them; but I seem now always to be called on to interfere about Ralph."

"What's the matter now?" Raine's quick, jerking utterance had returned and formed a striking contrast to the slow, refined speech of his companion, it was full of seeming impatience, and the fire of his dark eyes enhanced this idea.

"Oh, a trifle not worth repeating, except that trifles make or mar life. I was asking myself, just as you came in, how I am to bring up Ralph without his mother to help me."

"Nonsense — I beg your pardon, my dear fellow" — his voice was gentle in an instant, for he had had deep sympathy with his cousin's sorrow, though he considered Mrs. Burneston had spoiled her husband's life — "but at ten years old I think a boy is better away from women."

Mr. Burneston fidgeted with a paper-knife on the table near him.

"Yes, I know I ought to send him to school, but then his mother thought him too delicate, and Faith says it would be the death of him."

"I shouldn't listen to Faith."

"No, you would not, because a single man of your age does not believe in a woman's judgment on certain points of health as a married man does, simply because the single man is a theorist in such matters."

Gilbert Raine shrugged his shoulders and laughed. "I intend to keep to theory; but if you don't send the boy to school, you must marry again, Phil; you can't expect Ralph to submit to an old nurse, the boy wouldn't be worth his salt if he did." A slight flush tinged Mr. Raine's dark, hollow cheeks, he was conscious of having encouraged Ralph in small rebellions against the housekeeper's interference.

"Well, perhaps not, but you are the last man I expected such advice from." Mr. Burneston sat upright and looked hard at his friend.

"I dare say — well, yes — but one can't always preach what one practises; a wife would destroy my happiness, she might increase yours; at least, I can see very plainly that you must have some one to take these petty worries off your hands, though, to tell you the truth, I always thought you much too light-hearted to let yourself be worried easily."

Burneston got up, shook himself, and laughed.

"So I am. You happened to come in at a moment when I had been vexed, by this evening I should have forgotten all about Ralph's scrape. I believe," he laughed again, "it is not anything in itself that worries, it is rather that nature revolts from the harness of civilized life after our two years of Arab freedom."

Raine groaned.

"Ah, there is the outcome of having been drilled by a wife. Now I'm going back to Austin's End. I don't mean that my responsibilities equal yours. I have one small estate to look after, and you have two large ones and a boy besides; but still I sha'n't allow myself to be worried, any more than I worried while we were vagrants."

"I wish we were vagrants again," Mr. Burneston sighed.

Raine went on, "Then again I keep the fewest possible servants, not only from economy, but because I find that servants are a worry. I never study fashion, either in dress or anything else, or that would soon grow into a worry, and I never allow dusting in my rooms: dusting is the greatest worry I can conceive in life, and a wife, you see, would at once bring servants and fashion, and dusters and brooms to Austin's End."

Burneston was laughing heartily. "My wonder is," he said, "that you don't try and find some one of your own way of thinking. You must often want help in arrang-

ing your treasures in that wonderful den of yours."

Raine looked serious for an instant.

"No, Phil, I thought of it once, I even argued it out, but I found it would not do. No," he shook his head. "A woman with my tastes would be a sloven, and I could not stand that in a wife; and probably she would be ugly. I thought once of another plan, but it would be too troublesome."

"And what may that be?"

"Well,"—Raine reddened, he shrank from his friend's ridicule—"it is an experiment that has been tried, but the result seems doubtful; of course it may not have been tried under favorable conditions. I thought whether it would do to choose out some young, good-looking, healthy country girl of twelve or thereabouts, and have her brought up precisely to suit me."

"But, my dear Gilbert, don't you see that to suit you she must have a certain amount of culture, and with that very culture would come the seeds of all you shrink from, love of dress, fashion, order, and need of attendance, just as one foot follows the other as you walk."

"Yes, I know," Raine looked foolish, "I saw all that, and I also saw another evil harder to bear than any—there might be children, and then there would be that unutterably vexed question of confusion of race, and though the Raines are poor, they have managed to keep to conservatism hitherto."

"You think opinion is influenced by blood then?"

"Undoubtedly; from such a marriage might spring a thorough-going Radical, who would perhaps level the old place, and build a modern mansion lighted by gas," he said mockingly.

"You are joking; you know as well as I do that outward surroundings and associations do much to cultivate and refine, and that whoever married you would for peace and quietness' sake adopt your opinions."

"Well, I shall not try the experiment, though I think the idea as an idea is not a bad one; but, to go back to the beginning, take my advice and send your boy to school."

CHAPTER IV.

THE FIRST STEP.

GILBERT RAINE only stayed another day at Burneston, and then set off for his cheerless, quaint, museum-like home at Austin's End, nearly a hundred miles away.

Mr. Burneston felt doubly lonely without him; Gilbert Raine was not a talkative companion, unless some favorite topic was discussed; but he was so full of genial warmth, so ready with rough counsel or with full-hearted sympathy, so deeply read and many-gifted, that when he went away the old manor-house felt as chilly as if the fires had gone out in the wide hearths, and the candles had sunk in their sockets.

There had been a singularly strong affection between the friends in their university life, when Gilbert Raine's public-school training had enabled him to be of great service to his home-trained cousin. Gilbert Raine had never known the spoiling of prosperity. He had been brought up by an eccentric bachelor uncle, who had made his inheritance of the small estate called Austin's End dependent on the boy's success both at school and college, and had besides enforced on him the strictest economy and self-denial. So that when at thirty he became his uncle's heir, he went on instinctively with the same simple, inexpensive habits, content to be left alone with his books, and only rejoicing in his larger means for the power they gave of adding to his treasures. Some of his equals called Gilbert Raine a miserly book-worm; but his poor tenants knew better, and said that there was a real good master at Austin's End.

Mr. Burneston had been so long with his cousin that he felt strangely unsettled at his departure, and yet he had no wish to leave the Hall. He took a lively interest in some planting on one side of the estate, and in draining and farm-building in another quarter; it was only when he came home tired out with his day's work that a restless discontent mastered him. And as discontent requires a very strong guardian, to be kept entirely out of sight, he was stern to Ralph and harsh to Faith, and disposed to general faultfinding with his household. Benjamin shook his head and whispered to his wife, "Theer'll be a new missus afore lang at t' Hall."

"Gan yer ways, sheea'll be a furrineer then, t' maister hevn't had t' chance o' seein' English laadies, an' after all it 'wad be bud nat'ral, he's too yung te be left aleean."

Joseph Sunley, the old sexton, who lived in the stone cottage next Mrs. Duncombe, was growing much disturbed by the squire's ways. He saw Mr. Burneston often now, and he commented on his frequent visits to the Church Farm. Joseph was not a conscious gossip, but by

living alone he had got a habit of talking to himself, and being a little deaf, was unaware how much of his mind he gave to the public.

One evening about a fortnight after Mr. Raine's departure, he sat at his door in a round-backed, three-cornered wooden chair; it was a warm evening, and he sat in his shirt-sleeves smoking a pipe.

His old brown face was puckered more than could have been caused by the effort of holding his pipe, and when he removed it, and held it between his fingers, the creases deepened round his mouth.

"Dang it," he struck his hand heavily on his brown fustian knees, "it fair caps me, that it diz. John Barugh's a decent chap, a trifle slow an' awkard; bud 'at missus o' hiz sheea's as fahne as a fiddle, an' that's aboot t' truth, an' ah deean't think Mr. Burneston can find owt te say tiv 'er. Mebby he gans noo t' see t' sick lad, bud ah deean't knaw, an' ah can't reeghtly tell what fer he gans theer so oft, it's mair an a boddy like me can knaw; bud he diz gan theer, an' that's sure an' certain, so theer."

He stopped not a minute too soon. Looking across the road, he saw Doris opening the white gate. She came slowly in answer to his nod. "How's t' lad?" he said. Doris looked very grave.

"Nay, but it's sad then," she spoke slowly, "t' doctor hev telt mother yisterda 'at t' poor lad'll mebby nivver hev t' reet use o' his legs ageean."

"Eh, what's 'at he sed, lass?" Joseph's face contracted, till a fan of wrinkles spread from the corners of his eyes and lips. "Poor chap, nut hev t' use o' his legs ageean — nut walk! What diz t' lass meean?"

"He'll mebby nut walk 'cept wi' crutches. Eh, Mr. Sunley, think o' George wi' crutches!" she pressed her lips tightly together. "But t' doctor hev said so — so now ye know."

"Mr. Burneston gans to see t' lad, eh lass; it's reeght kind o' him te gan so oft; ee's a kind chap, t' maister is."

"Ay," said Doris, "but he deean't say much te George, he talks te mother an' me; but ah mun go, Mr. Sunley, ah mun go te t' vicarage."

Joseph sate still watching the girl as she went round the corner to the churchyard gate, and then out at a smaller gate in the corner nearest the farm, which led into the glebe field. She could have done this just as well by going through the farmyard, and out into the glebe field by the gate on which she was swinging when the squire first saw her. But ever since that luckless afternoon Doris had hated the gate with all the strength of her nature. She did not hate Mr. Burneston, her sense of justice told her that he was not to blame because he had heard her foolish song; but she never felt at ease with him, and when she could she avoided being present at his visits, although she secretly delighted in listening to his gentle voice and refined speech.

To-day, besides her dislike to the glebe gate, she had seen Mr. Burneston standing in the rick-yard talking to her father, and she at once remembered that she had promised George to fetch him a book from the vicarage.

"Bon it!" Joseph said to himself, "t' wurld's full o' strange things. Te think o' a stiddy chap like Mr. Burneston spendin' his time wit' t' like o' Dorothy Barugh as he diz. Ah'd thowt he'd hev cared to hear o' his fayther an' his grandfayther when a' wer lahtle lads like Maister Ralph. Ah minds 'em both; they wor fahne lads, mebby not so bonny-lookin' as what this chap hev growed into; bud neea, neea, t' times is changed, fooalks nivver looks back noo, it's allays forrad, forrad, forrad."

At that moment Mr. Burneston was an apt illustration of Joseph's words. For more than a week he had been soothing his restlessness by mental pictures, which he felt only required an act of will to be converted from castles in the air to realities. And the past — which he had even thought of with regret, even if he had never felt a longing for its return — was gradually fading into a grey mist, in which indifference made all indistinct.

No wonder that Ralph complained of his father's dulness — every link that bound the boy to his father formed part of other links that went backwards into life; there was as yet nothing to bring Ralph into this dreamlike fancy which so entirely absorbed the present.

Mr. Burneston saw Doris go out of the house, and then he saw the gate swing, and he knew that she would not come through the rick-yard. But to-day he had made up his mind to act, and her absence was a necessary preliminary to this action.

He watched the girl pass beside the screen of fir-trees, and then he turned with a new purpose in his face to John Barugh.

"I want to have some talk with you and your wife together," he said; "shall we go in?"

He did not wait for the farmer's assent, but led the way to the house.

Joseph had seen Mr. Burneston coming

from the rick-yard, and by the time they were crossing towards the house he had reached the gate.

Pre-occupied as he was, Philip Burneston could not forget his habitual courtesy.

"Good-day, Joseph. How's the stiff knee? Did Mrs. Emmett's stuff do any good?"

Joseph shook his head.

"Neeah, neeah, sir, 't wurn't likely 'at t' sort o' stuff 'ud deea fer a knee, when t' wur wrote o' 't i' plain writin' fer a airm; a knee an' a airm ain't made alike,'bliss t' lass. Shea sud read o' t' bottles afore sheea sends 'em te fooak."

"Well, I'll tell her," but Mr. Burneston spoke so absently as he turned away, that a fresh pucker rose on Joseph's forehead.

"Dash mah! Ah's fair capt, ah is; he's as gium as a sperret," he said, as he limped back to the seat outside his door. "Mebby Mrs. Duncombe knaws summat aboot 'un; shea's a 'cute awd lass."

Generally Mr. Burneston's visit only lasted half an hour, but to-day, though Joseph never relaxed his watch, an hour and a half passed, and still the squire did not come out. Doris came back, went in with the book, but she did not stay indoors, and Joseph saw her go on to the beehives.

At last the house-door opened, and Mr. Burneston appeared, followed by both husband and wife. Joseph gave a grunt of disapprobation, as he watched the cordial leave-taking, and then he tried to listen as Mr. Burneston stopped, when he came to the gate, to say a few more words to John Barugh.

They seemed very earnest words, but the sexton's deaf ears disappointed his eager longing; he could not hear Mr. Burneston say, —

"Well, I hope in time you will see the matter as your wife does. All that Doris gains at school will be undone if she spends her holidays here; you shall go and see her once a year, and she will of course write to you constantly."

John Barugh's face was full of trouble.

"Ah knaws 'at yeh mean it fer t' lass's gude, sur; bud ah mean no offence when ah say ah cann't see 't, ner ah cann't say ah thank yeh nowther. Ah cann't thank any mon as wants t' tak mah lass away fra' me."

Book I. — School.

CHAPTER I.

TWO SCHOOLGIRLS.

About four miles from London, on the skirts of a large common overgrown with golden gorse, there stood and still stands a large old-fashioned house, probably dating as far back as the Tudors.

In the large plot of front garden is a group of tall trees round which sweeps a broad, gravelled carriage drive, entered through tall, iron gates set in the high, iron railing which mounted on a low wall screens the house from the road. There is a portico over the central doorway; and above the old-fashioned windows are three quaint gables. The entrance under the portico is closed, but on the left side of the house is a conservatory, and through this you can, if you please, enter Pelican House, cross its slippery, marble-floored hall, and find your way out through double glass-doors on the left into a sort of second matted hall and thence to a pleasant lawn surrounded by shrubberies, and shaded on one side by the lofty elms which screen the grounds of Pelican House from those of its neighbor.

If you look round the matted hall a variety of garden bonnets hanging on pegs, a collection of battledores and shuttlecocks, with here and there the hoops and sticks for a game called *la grâce*, skipping-ropes and balls, will have suggested to you that Pelican House is a girls' school, and a few steps outside the glass-door will convince you of this fact, for the bell is ringing, and about a dozen girls of various age and size come rushing out, some by the way you have come, some from other doors, for the house is much larger than it looks from the gates; and in a minute, although almost all have disappeared among the shrubberies, a soft buzz of girls' voices, and occasional notes of merry, ringing laughter, reach you as you stand on the range of shallow steps which forms a terrace above the lawn.

The girls divide as they pass out of sight into small groups, and some twos go hand-in-hand or with arms circling each other's waists. The last two are neither the eldest nor the youngest. They are well matched in height and age, very different in face and figure.

The tall, slender girl, with erect head and delicately-cut, regular features, is Doris Barugh; but the ease with which she walks, and a nameless something which has spread over her whole person, show that the two years spent at Pelican House have given her, at least, outward refinement both when in movement and in repose. As the "principal," or schoolmistress, as she was simply called forty years ago, had said to Mr. Burneston, "The girl has so much natural refinement of look

and dignity of manner, that there will be little up-hill work in training her."

And as Miss Phillimore's idea of education for her pupils did not go beyond refinement and culture, both of look and manner, with the amount of head knowledge and the accomplishments necessary for "a young lady," Doris was from her point of view a complete success.

Mr. Burneston had said to the schoolmistress that a friend of his wished to place his daughter under her care — a remarkable girl, but one whose education had been neglected. "Outward refinement and polish are what she chiefly wants," he said, getting a little confused under the calm eyes of the observing lady; "she has plenty of self-respect and dignity."

Miss Phillimore had that quickness in perceiving weak points which is so often found in a shallow nature incapable of deeper insight or sympathy, and she at once, woman-like, jumped at the result which this charming, pleasant-looking gentleman was contemplating; but she kept her surmise a secret, only, having ascertained the extent of Mr. Burneston's property, and the importance of his position, she resolved to attach the new pupil to herself, and to fit her in every way for the future that she divined lay before her. For even cold, world-hardened Miss Phillimore was at once fascinated by the girl's beauty, and the graceful dignity of her manner.

Often to herself the schoolmistress wondered how it was that this farmer's daughter had so rapidly shot out of the sheath of ignorance and broad speech which had at first separated her from her schoolfellows, and had now distanced them all in any study to which she chose to apply herself.

"Choose is the word," said Miss Phillimore thoughtfully. "Doris is so conscientiously in earnest in all she does, that I have never yet had to thwart her will. I fancy she could be very stubborn." But the schoolmistress dismissed the half-revelation which came to her with these words; and on the old plan of "leave well alone," she was doubtless in the right, having, with all her learning and perfection of outward manner, about as much knowledge of the human heart or of the way to help it in its struggles against self, as a hairdresser has of the inside of the heads that pass under his hands.

"Ah, Doris," she said with a smiling bow, as the two girls met her at a turn in one of the shrubberies. "A delightful afternoon, is it not?" and then she included Doris's companion in her very pleasant smile, and passed on towards the house.

"I wonder" — the girl shorter and stouter than Doris looked and breathed fresh country air, she might have just been gathered from a wild-rose spray — "I wonder," she hesitated, pushing her hazel-nut-brown hair out of her eyes, "if that smile may be trusted."

Doris lifted her long, dark lashes, and gave a surprised look at her companion.

"I should not have thought you mistrustful, Miss Masham."

"Why 'Miss Masham'? I told you this morning that if I did not bore you I should like to be your friend. I will call you Doris."

"I will call you what you like," said Doris quickly. "I think your name is Frederica?"

"Yes, is it not horrible? but you must call me Rica. At home the boys call me Freddy, but I don't like it, and my mother always calls me Rica."

"You have a mother, then?"

"Oh yes," sadly, "that is why I work so hard. I want to be very clever; my mother is so delicate, and if anything happened to my father, I should like to be of use. You see I am so terribly unlike other girls, at least they say so, and I am come here to be got into shape."

Doris smiled, and such a rare sweetness spread over her face that Rica looked up at her lovingly.

"Certainly you are not like other girls," she said in the soft, low voice that had charmed Mr. Burneston. She had lost the dialect, and she said I for ah now, but she had still the sweetness of northern tone. "But then these two years that I've been here, I've seen so many girls, and I've often wished they were not all so like one another."

"Ah! but," Rica broke in with impulsive abruptness, "are you quite sure they were alike? Don't laugh at me, Doris, but it seems to me that you do not notice much that goes on round you. You often seem to be dreaming; perhaps," she looked admiringly at her lovely friend, "you are thinking out thoughts beyond our comprehension."

Doris blushed so deeply in such confusion that Rica felt puzzled.

"Don't say that to me, please. I can't talk about my own thoughts. I dare say we are none of us quite so good or quite so bad as we seem. But I want to know why you distrust Miss Phillimore?"

"Well, I've only known her a few days,

but she never has any phases or moods. It is natural you should like her, she treats you like a queen, but it seems to me that such a perpetually serene smile must be artificial and mechanical. People feel hot and cold, and glad and sorry, and well and ill; and of course all these phases must affect both mind and body; and somehow I don't think Miss Phillimore goes in for religion enough to make her perpetual sweetness the result of saintliness."

"I know nothing about saints," said Doris coldly, "but I fancy they must be dull and uninteresting, even if there are such people."

Rica's large grey eyes had been fixed earnestly on her companion. In an instant they grew dark and liquid as the pupils dilated, and she said with intense feeling, "Hush, Doris, dear! Don't say that. My father and mother are both saints, and so was my sister who died."

"Why"—began Doris, but she stopped. Rica's pink dimpled hands were placed on her eyes to keep in the tears which began to show through them.

They walked on silently. Doris soon forgot Rica, she went on thinking out a thought that often occupied her—what would life be like when she went to live at home? To-day this thought pressed heavily, and after it came another, how much longer should she stay at school? And then the dread, which week by week grew stronger as she brooded over it, should she be happy when she left Pelican House? Whenever she thought of her parents and her old life, she grew more and more aware of the change in herself. Another thought sometimes intruded, but she did not let herself dwell on it. A feeling that was partly pride, partly a kind of awkward shyness, which linked her to the past she so longed to forget, always made her banish any reveries about Mr. Burneston, and the share he had had in her going to school; but still every now and then, seemingly against her will, she found herself wondering whether she should ever see him again, and whether he would see the change in her; but her face grew crimson at the memory of that first interview, that by degrees she had made herself regard as a thing of no consequence.

Mr. Burneston had paid several visits to the farm before he could get John Barugh to listen patiently to his plans for Doris. He argued that the girl must be educated somewhere; that there was only an infant school in Burneston; even at Steersley, the nearest town, there was only a third-rate school, where Doris would learn more harm than good; even there she would have to go as a boarder, so that there must be a separation. If Mr. Barugh would tell him how much he would spend on his daughter's schooling, he (the squire) would promise that the sum named should satisfy the schoolmistress he had in view. But at this point John shrugged his broad shoulders and retreated to the mantelshelf, leaving Mr. Burneston to finish the talk with his wife.

At last, at the end of a month, wearied out by the squire's persistence and his wife's persistent persecution, he conceded that the decision should be left to Doris herself, on condition that he was present when the matter was put before her.

On the evening following this concession her mother called Doris in from the beehives. She spoke very cheerfully.

"Doris, lass, will ye like to go to school again?"

The girl had a sort of quiet mistrust of her mother's wisdom. She looked on to the tall, red-bearded father for answer.

John sighed, and a smothered groan sounded as he leant on the mantelshelf.

"Neeah, lass, gin thee dee'ant cotton tiv't, thee sall bide at yam. Better be content wi' thy awn fooak than freeat theesel to be made a laady."

"Nay, nay, father, that's not fair." There was a sharp anxiety in Dorothy's thin voice, and as her husband listened to it his head sank as if his last hope was gone. "We was to put it fair before her, an' she was to choose herself."

"What is t' choice?" said Doris firmly. "An' wheea is't can hev owt te do wi' me, beside fayther an' thee?"

John Barugh made a step forward, and then, with a great effort at self-control, he went back to the hearth.

"You tell her if you like," his wife said fretfully. She was trembling with eagerness lest her father's evident unwillingness should check the girl's ambition.

John Barugh shook his head.

"Wheea dee'ant thee tell it out, mother?" said Doris contemptuously.

"I'm sure it's time you was sent to school to learn manners, let alone how to talk. I'm sure I can't teach you, even to speak properly, though it's not for want of trying," said Dorothy. Then, afraid that her husband would tell her story for her, "If you like, Doris, you may go to a good school, such as reel ladies goes to, an' be taught everything heart can wish, an' to talk like 'the quality,' as your father says, an' cost little to him neither."

"Tell t' truth, Dorothy." John Barugh had come forward, and there was a bitterness in his voice that startled the girl. Rarely had her mother's fretful twitting and constant complaints drawn an angry word from the strong, patient man, who sixteen years before had married for love, and he had never, before one of his children, rebuked his wife thus sternly. Then turning to Doris, who had become pale with sudden shrinking from this token of deep unspoken strife between her parents, "Ah'll tell t' lass mysel'. Neeah, neeah, Doris lass, ther's tweea sahdes t' ivverything i' life, an' thy moother's telt thee t' bright o' this'n. T' ither's a sad sahde te me, lass. Mebbe ah'm wrang, an' if ye think ah's wrang, ye'll be noane feard o' speakin' oop an' tellin' yer faythers, lass."

She looked at him trying to understand.

"Ah can't say while ah kens nowt, faythers."

It was curious that the girl's accent always broadened in speaking to her father.

"Well," said Mrs. Barugh pettishly, "there's a vast o' words wasted. It's soon said; you'll have to spend yer holidays at school, and never come home till ye've done with the learnin'."

Doris stood with open mouth and staring eyes. It was too much to take in all at once. She had first been dazzled, now she was shocked.

"Nivver coom yam!" She looked longingly at her father, and the pain in her voice soothed the hunger which had been gnawing at his heart.

"Neeah, lass" — and then, with an effort against himself, the supreme martyrdom of which no child could ever comprehend — "bud ah tellt ye t' leeak a beath sahdes, yan as mitch as t' other. Ther's t' scheeal an' t' learnin' ye says noo an' again ye wearies after, an' books, an' music, an' sike; an' ther's stayin' on in t' yam wi' faythers an' moothers an' t' poor lad."

"George 'd miss me," said Doris simply.

John Barugh turned his back, went again to the mantelshelf, and gulped down a sob there. Then came a silence.

"Faythers" — Doris spoke resolutely — "scheeal is a great thing fer a lass. Ah'd liever not say out at yance what ah chooses."

"Neeah," he sighed; "at's trew an' fair eneeaf; t' mooarnin' 'ell deea te talk ageean, if it's t' be."

But his heart was very heavy; he had clung to the hope that he was as necessary to the girl as she was to him, and her hesitation told him what her decision would be.

And he was right. In less than a month Doris had bade good-bye to her mother and to poor, sobbing George, and found herself less sorrowful than she expected when she had parted from her father at the gates of Pelican House. For John Barugh would not risk a farewell before witnesses.

"Neeah, neeah," he said to Dorothy when he got back, "Doris looks a laady; no need for the fine scheeal-missus to see as she hev sike a rough chap te her faythers."

At the end of the year, he claimed Mr. Burneston's promise to go up and see Doris; he managed to see her alone and to exchange as few words as possible with any one else. And when he came back he said to Dorothy,—

"Gi' me a kiss, lass. Thou was i' t' reeght an' ah was i' t' wrang. T' lass is as beautiful an' as sweet as any queen; nowt's too gude fer t' like o' Doris. sheea's i' t' reet place. Sheea war clean thrawed away on sike as wersels."

And Mrs. Barugh gave the kiss. She did not hear the sob in her husband's voice; she hungered for a sight of her beautiful child, but her ambition was stronger than her love, and she sat with half-closed eyes and smiling lips, listening to all John had to tell, and weaving the part she meant to play in the brilliant future which lay before Doris.

Only George looked dissatisfied.

"Faythers," he said, after a pause, "is thee quite seear Doris is i' t' reet road?"

Even his mother's doating fondness could not keep her from an angry word.

"George, ye're turning foolish, lad; was ever the like o' such silly stuff as that?"

"Ah me-ans, faythers" — the boy's eyes looked earnestly in John Barugh's face — "it says, 'to do our duty in that state of life to which God hev been pleased to call us.' Now God didn't make Doris a laady."

His father's face clouded; but his mother laid her hand on his lips.

"Ye want yer supper, my poor lad." Then going over to her husband, who was stooping to get a light for his pipe, "Don't heed his sick fancies," she said; "it's best not take notice."

George was silent; but the day after his father's second visit to Pelican House, when he was alone with his father, he asked for writing-tools, and with much effort wrote to his sister.

When he had finished he looked at his father. "Seal it oop, faather, an' send it on to Doris." And then he fell back, white and exhausted with the effort he had made.

It was this letter that had made Doris so very dreamy and abstracted for the last few days.

She was not troubled by George's earnest question. "The poor, sick lad," she said to herself, no wonder he takes fancies as he lies there day after day; but I will write. Nay, nay, it's not a fancy. Any one must be i' t' right who's trying to better herself; Miss Phillimore has said so." Now and then, and especially when she was thinking of home-life, Doris would fall into the old familiar thought, and then check herself proudly for the error.

She glanced at her companion, whose pure, refined enunciation had greatly impressed her, and she felt thankful she had not spoken aloud.

Meantime Rica had recovered her self-possession.

"You have no sisters, either," she said quietly. She was glad that Doris was not demonstrative, for she shrank from some of her more gushing school-fellows, but still she wished her new friend had kissed her just now, when she must have seen she was very sad.

Doris started. "No. I've only got that poor, sick brother I told you about, who is almost always lying on a sofa."

"How dreadful!" and Rica's sympathetic face grew puckered in an instant. "How glad you must be when your holidays come, to go home and amuse him! Are you good at making up stories?"

Doris laughed.

"I never made up a story in my life, unless"—she hesitated—"do you call looking forward and planning what may happen to oneself making up stories?"

Rica looked curiously at her companion.

"What a strange creature you are!" Then, noticing a quick flush on her friend's delicate face, "I beg pardon. Do you mind—did I vex you? I did not mean to; I only thought that you take the same trouble and get less fun."

"I don't understand." There was pain in Doris's voice.

"Why, isn't it more amusing to make stories about people one has never seen, to make new people to think about, than to go on thinking about oneself? Of course you're a different self to me; but I've heard so much about myself in the way of scoldings, and so on, that I believe I'm rather sick of Rica Masham and all that belongs to her."

Doris thought before she answered.

"It may be more amusing to do as you say, but it's not reality, Rica. How old are you?"

"I am fifteen and a half, and you——"

"I am just seventeen; but it seems to me I am ever so much older than you are. I dare say you'll do me good. Some day I'll tell you about myself, and why I am what you call such a strange girl."

"Tell me all this minute: you know all about me, and my father, and my mother, and my four brothers—such jolly boys!—and all I know of you is about poor sick George. When I love people I like to be able to imagine them in their home-life. Perhaps you will let me go and see you some day. I have written to my father already to ask you."

Doris blushed brightly, but this time she was evidently pleased.

"You are very kind indeed; but I stay here in the holidays; I do not even go home. Some day, if we keep friends, you shall know all about my home and everything, and then perhaps"—she made a great struggle to be frank—"you will not want to come and see me."

"Naughty Doris"—Rica's arm stole round her neck and drew her down to be kissed. "But, no, I will not go to see *you;* I shall go to your home on purpose to tell stories to that poor darling George."

From Blackwood's Magazine.

SAMUEL WARREN.

BORN, 1807—DIED, JULY 29, 1877.

ON the 29th July died Samuel Warren, the author of "Ten Thousand a-Year" and the "Diary of a Late Physician." Although it is now many years since any contribution from his pen appeared in the columns of this magazine, his fame is so much bound up with *Blackwood* that we feel sure our readers will sympathize with us in an attempt to give expression to our sorrow and our sense of loss. His place has for years stood vacant in the circle of authors, but his name is as familiar to the present generation of readers as to that which laughed and wept with him in turn, while the passages of the "Diary" and the fortunes of Tittlebat Titmouse were first passing through these pages. His family has sustained a heavy afflic-

tion; but it is tempered to them by the sympathy, not merely of those to whom he had personally endeared himself, by his kindness of heart and devoted friendship, but of all who have read his fictions, — for no one ever read Samuel Warren's books without conceiving a liking for the author. To us his loss is especially painful, for he was almost the last of a distinguished circle of coadjutors, whose connection with "Maga" in the earlier half of this century shed a mutual lustre over themselves and on us. The pride which he took in his connection with this magazine, so frequently expressed in his writings, was as gratifying to us as it was honorable to him; and we feel a sad pleasure in now recalling the chief incidents of his literary intercourse with us.

Samuel Warren was born in Denbighshire in 1807, the son of a Wesleyan clergyman, who afterwards took orders in the Church of England. He studied medicine in Edinburgh for some time, but, changing his mind, he went to London and began to read for the bar. It was while still a student in the Inns of Court that he commenced his literary career, and his first introduction to our pages cannot be more fittingly told than in his own words, in the preface to the fifth edition of the "Diary of a Late Physician," published in 1837: —

The first chapter of this "Diary" — the "Early Struggles" — was offered by me successively to the conductors of three leading magazines in London, and rejected, as "unsuitable for their pages," and "not likely to interest the public." In despair, I bethought myself of the "great northern magazine." I remember taking my packet to Mr. Cadell's in the Strand, with a sad suspicion that I should never see or hear anything more of it: but at the close of the month I received a letter from Mr. Blackwood, informing me that he had inserted the chapter, and begging me to make arrangements for immediately proceeding regularly with the series. It expressed his cordial approval of the first chapter, and predicted that I was likely to produce a series of papers well suited for his magazine, and calculated to interest the public. It would be great affectation in me, and ingratitude towards the public, were I to conceal my belief that his expectations have been in some degree verified by the event. Here I wish to pay a brief and sincere tribute to the memory of my late friend, Mr. Blackwood. I shall ever cherish it with respect and affection. I have this morning been referring to nearly fifty letters which he wrote to me during the publication of the first fifteen chapters of the "Diary." The perusal of them has occasioned me lively emotion. All of them evidence the remarkable tact and energy with which he conducted his celebrated magazine. Harassing as were his labors at the close of every month, he nevertheless invariably wrote to me a letter of considerable length, in style terse, vigorous, and accurate, full of interesting comments on literary matters in general, and instructive suggestions concerning my own papers in particular. He was a man of strong intellect, of great practical sagacity, of unrivalled energy and industry, of high and inflexible honor in every transaction, great or small, that I ever heard of his being concerned in. But for him, this work would certainly never have been in existence; and should it be so fortunate as to *live*, I wish it ever to be accompanied by the tribute I here sincerely and spontaneously pay to the memory of my departed friend, William Blackwood.

So full of deep and varied experience and knowledge of life was the physician's "Diary," that Mr. Blackwood naturally concluded it must be the work of a man of mature years. What was his surprise, then, when a bright-looking young man of two or three and twenty introduced himself as the author. "Bless me," exclaimed the astonished editor, as he glanced at the glossy black curls of his visitor, "I had thought your hair must be as grey as my own!" It was in August 1830 that the "Diary" began, and it was carried through the magazine at intervals during the next seven years, until a work of greater ambition began to occupy his mind. The merits of the physician's "Diary" were speedily acknowledged. The profession was indignant at the breach of etiquette implied in the publication of records of practice, and its journals anxiously sought to discover the offender. Month after month fresh passages were eagerly expected, were critically scanned when published, and not unfrequently made the subject of warm newspaper discussion. It does not appear that any suspicion was excited regarding the reality of the author's assumed profession, until circumstances brought about a revelation of his personality. Although the popularity of the "Diary" was so great as to insure success for any other work from the same pen, Warren's next venture was also at the outset an anonymous one. The first chapter of "Ten Thousand a-Year" appeared in the magazine of October 1839, and at once excited a powerful interest, which was not exhausted until all that there was to tell of the fortunes of the Aubreys and of the career of Titmouse had been revealed. The time was one when no novel not of intrinsic strength and merit could have held its ground. Some of the great-

est masters of English fiction were then before the public, and both genius and power were needed, not to beat but to keep neck-and-neck with them in the race. The public were not slow to find many faults with "Ten Thousand a-Year." Some cavilled at the characters, many at the political bias, a good few at the plot, but all were impressed and all were interested. The success which attended the appearance of the story as a separate work was not at all impaired by its previous serial publication, and the hold which it then took upon the public has never up to the present moment relaxed.

The anonymity was now no more; and the hand of the author of "Ten Thousand a-Year" was easily traceable in many papers contributed to these pages down to a period of about twenty years ago. These sketches, now collected in a volume of "Miscellanies," are still read with great interest. As chips from the workshop in which the "Diary" and "Ten Thousand a-Year" were constructed, they naturally possess a strong claim on the critic's attention; and he will not fail to recognize in them the germ of many incidents which Warren has turned to good account in his great fiction. The same power of extracting dramatic effect out of ordinary judicial processes, which holds us spell-bound while the court is deciding the fate of the Yatton property, is displayed to great advantage in the sketch, "Who is the Murderer?" and in others of a similar character, which have proved a mine of wealth to subsequent novelists of the sensational school. Many writers of fiction could be pointed to who are largely indebted to Warren's works for their knowledge of the bar and the courts. A series of papers reviewing Townsend's "Modern State Trials" furnish a very readable account of some of the more remarkable *causes célèbres* prosecuted by the crown during the present reign. The treason of the Welsh rioters; Oxford's attempt to assassinate the queen; the murder of Mr. Drummond, Sir Robert Peel's private secretary, by M'Naughton; the trial of Humphreys, the claimant of the Stirling peerage, whose case is described at length under the title of "The Romance of Forgery;" the trial of Lord Cardigan by his peers for duelling; and the cases of O'Connell and Smith O'Brien, are all told in a manner that happily blend the acumen of the skilled lawyer with the vivacity and picturesqueness of the novelist. The last of his works that we shall notice, "Now and Then," was reviewed in *Blackwood* of February 1848, when an attempt was made to do justice to the lofty purpose, the dramatic power, and the exquisite pathos of the story of Adam Ayliffe. It is less ambitious in conception than "Ten Thousand a-Year," and is characterized by far less striving for effect than we meet with in that novel; but to our mind it possesses a sweetness and a softening influence that mere literary art could hardly have given it, and that could have sprung only from a pure mind feeling deeply for human distress. The fame that these works had secured him was sufficient to satisfy his literary ambition; his legal duties naturally claimed his first care; and his contributions to the magazine grew more infrequent, until at last he stood aside, and the pages which his writing had so often adorned knew his pen no more.

Such in brief outline is the story of Samuel Warren's literary life. It would be incomplete without some reference to his professional career. After practising for some years under the bar as a special pleader, he was called by the Inner Temple in 1837. Notwithstanding the mark which his novels had made for him, his progress was not rapid. He had to bear the full share of disappointment that falls to the lot of most lawyers, and to practise that patience which he had so forcibly preached in his fictions. Men accounted for this by the time-honored superstition that when a barrister begins to dabble in literature, his chances of professional success are altogether thrown away. Warren consoled himself with the more flattering belief that the attorneys were revenging themselves on him for the severe picture which he had drawn of their practices in his account of the firm of Quirk, Gammon, and Snap. We believe the real reason to be one more honorable to his character. Possessing, as he did, a high sense of the dignity of his profession, he not only did not resort to the common expedients for securing business, but did not even make such advances as are sanctioned by professional usage toward those who had the distribution of work. But if the Quirks and Gammons of the profession made him the object of their spite, he was more than compensated by the esteem in which he was held by the worthier members of the profession. Such men as Follett, Talfourd, and Pollock, Fitzroy Kelly, Grove, and Barnes Peacock, were his personal friends and admirers; and though no doubt they made quiet jokes at the way in which he bore his literary honors, they loved and respected him as a colleague.

He went the Northern Circuit, and if none of those splendid chances which sometimes lift a man at one stroke from obscurity to wealth and professional advancement presented themselves to him, a still more propitious fortune gave him an opportunity of winning for himself a place in the first rank of the authors of the day. His law books, which had met with fair success, showed that amid the greater attractions of literature his professional studies were not being neglected. In 1851 he was made a queen's counsel, and became a bencher of his inn, of which he subsequently acted as treasurer. The return of the Conservatives to power in 1852 gave his friend Mr. Walpole, the home secretary, an opportunity of recognizing Warren's merits in the way that was most agreeable to his feelings, and he was made recorder of Hull. We cannot doubt that the office was a congenial one, and that Warren spared no pains to augment the dignity and character of his bench; and we can easily suppose that his charges to the grand jury would be very fine addresses in point of law as well as in point of rhetoric. In 1853, on the occasion of Lord Derby's installation as chancellor of the university, he was made an honorary D. C. L. of Oxford, along with Lord Lytton, Sir Archibald Alison, and Professor Aytoun, his fellow-contributors to the magazine. He was returned to Parliament for the burgh of Midhurst in 1856, and continued to sit for that place until he vacated his seat in 1859.

His Parliamentary career does not call for many remarks. His self-consciousness was, perhaps, against his success in the House; perhaps he felt that he had already achieved too great triumphs to be content to submit to the novitiate which has to be undergone before a member can take his place as a party leader. But he left pleasant recollections behind him in the Commons, and a popularity which was not bounded by the ministerial benches. When the offer of a mastership in lunacy was made to him by Lord Derby in 1859, it was not accepted without some natural regrets for the attractions of a Parliamentary career, and the possibilities which he was leaving behind him. But prudence came to his assistance, and he accepted an office which he of all men, by his psychological experience, his keen perception of character, and his unswerving conscientiousness, was so well qualified to fill. And thus was partially fulfilled the vaticination which had been spoken of him by Sir George Rose: —

Though envy may sneer at you, Warren, and say,
"Why, yes, he has talent, but throws it away;"
Take a hint, change the *venue*, and still persevere,
And you'll end as you start with "Ten Thousand a-Year."

That in his new office he was a valuable public servant, doing his work with zeal and fidelity, we know well; and it does not speak little for the man that he should have devoted himself to the labors of an unostentatious office, nor allowed himself to be distracted from his duties by work which would have kept his name more prominently before his public.

Of Warren we are almost tempted to say that we are never so conscious of the novelist as when he is penning a law treatise, or of the lawyer as when he is moulding the structure of one of his novels. But if he has not left so lasting a mark upon the literature of the bar as upon that of his country, few of its members have done more to vindicate its honor, or to elevate its professional standards. Almost the only occasions when he really dips his pen in gall are when he has to deal with those who lower its position by their lives, or abuse its forms in their practice. But not only has he painted for us the character of Mr. Toady Hug that all may take warning by him, but he has presented the aspiring lawyer with some noble ideals like that of the attorney-general in "Ten Thousand a-Year." The respect which he invariably shows for the bench, and the zealous care which he exercises to assert its dignity, by his representations not only of the justice of its decisions but of the exemplary lives and characters of those who occupy it, deserve to be kept in honorable remembrance. The fact that his sketch of Lord Widdrington is more or less a portrait, does not detract from the skill with which it had been executed, or make us less proud that it can be said of the English bench this man was of it. And where shall we go for a nobler, a more touching picture of a struggle between justice and mercy, of the strivings of a lenient mind charged with the execution of stern decrees, than in the description of the chief justice in "Now and Then," when he is appealed to for a respite to Adam Ayliffe?

No critic is likely to do justice to the works of Samuel Warren who fails to see that he has to do with a moralist as well as a novelist. A generation less acquainted with the rules of literary art, used to apply to their books the simple

test, "whether they made one wiser and better." Antiquated as this criterion may appear to some, we cannot forbear applying it to Warren's novels. A great novelist has it even better in his power than a great preacher to justify to men the ways of the Almighty; and Warren never for a moment loses sight of the responsibility which the exercise of his genius imposes upon him. He thinks it no shame to confess that his fictions are written with a purpose. And the lessons which he teaches, when once learned, will not easily be forgotten. Is there any reader whose moral nature is so unimpressionable that he or she can lay down "Ten Thousand a-Year" without the feeling that they have been listening to a great preacher who has expounded the weighty text of human life as it had rarely ever been expounded before? What lessons of patient, hopeful endurance under unmerited reverses do we not learn from the story of Aubrey? Could deceit and hypocrisy be shown in all their native loathsomeness and with their terrible consequences more forcibly than in the career and ending of Gammon? How close is the acquaintance we make with suffering, both mental and physical, each in its many-sided and painful aspects, in the "Diary of a Late Physician"! And who can read that noble story of the peer and the peasant in "Now and Then," without a deep feeling of the overruling power of God's providence over the mutable condition of human society — a power that puts down the mighty from his seat and exalteth the humble and meek?

Impressed as he was with the responsibility of exercising his powers for a higher object than the mere amusement of his readers, it is not strange that he would not trim his sails to catch the popular breeze. The free vent which he gave to his political convictions excited hostility and prejudice against his works which nothing but their rare literary merits could have overtopped. "Ten Thousand a-Year" especially has been stigmatized as a "Tory novel." We would be doing an injustice to his memory if we either disavowed or apologized for the fact. He was not one of those who would allow the text, "Fear God: honor the king" to be divided. His conservative principles were a part of his religion; and some of the most prominent of his creations owe their pre-eminence to this combination. A very natural objection has been taken to "Ten Thousand a-Year," that its art is all of a partisan character — that the Tories are all demi-gods and angels, and the Whigs for the most part incarnations of vice and vulgarity. There may be some justice in this allegation, but the complaint has not lowered the place of the novel among the classics of English fiction. To form a just estimate of this charge, we must consider the society which "Ten Thousand a-Year" seeks to portray. The estate of Yatton is lost and won amid the furious agitations which preceded the first Reform Bill. The stirring politics of the day penetrated everywhere, and leavened the tone and feelings of society to an extent which the present generation has some difficulty in conceiving possible. Even amid the excitement of the trial of the great case of "Doe *dem.* Titmouse *vs.* Jolter," Mr. Quicksilver, one of the counsel for the "lessor of the plaintiff," employs the intervals in court to pen an article for a Radical review. A novel of English life during the reign of the fourth William without any allusion to the political aspects of society would have been like the play of Hamlet with the part of Hamlet left out. Mr. Titmouse, launched into politics under the auspices of Messrs. Quirk, Gammon, and Snap, naturally came into contact with the dregs of the Radical party, just as naturally as the best and most cultivated representatives of the Tory side are found in alliance with a man of Mr. Aubrey's refinement and position. And the partisan cast thus incidentally given to the book is of little account when we remember that a deeper motive than a purpose purely political underlies the whole. Atrociously grotesque as some of the Parliamentary caricatures unquestionably are, we doubt if they will appear as extravagant to the present generation as they did to that which read "Ten Thousand a-Year" for the first time in these pages. The Irish patriot who "showed infinite pluck in persevering against shouts of order from all parts of the house for an hour together," and his allies Mr. Phelim O'Doodle and the Och Hubbaboo, are not the only legislators whom Warren had a prophetic prescience that the "Great Bill for Giving Everybody Everything" would introduce into Parliament. But he would be a bigoted Whig indeed whose party prepossessions would not allow him to enjoy the pungent sarcasm and the wild humor which enter so largely into the descriptions of Mr. Tittlebat Titmouse's legislative career.

Of the "Diary of a Late Physician," it has been said that it betrayed a far more intimate acquaintance with the affections of the heart than the diseases of the body. But so fully does Warren's intense sym-

pathy with suffering cover his limited command of medical experience, that we are hardly sensible of any shortcoming. The field which the "Diary" covered was then a fresh one, and to the favor with which it was received was due the host of fictions cast in the form of professional experiences that speedily followed it. Probably none of his contemporaries could have played the *rôle* of the kind-hearted, philanthropic physician, who, not unacquainted with misfortune himself, has learned to hold out a helping hand to the miserable. His deep knowledge of the human heart, and his compassion with distress whether bodily or mental, enabled him to feel quite at home when dealing with the cases of those who were either expiating the consequences of their sins or were suffering from the unmerited harshness of a cold world. No one is likely to read the "Diary," however hurriedly, without perceiving that the author has probed each passion and dissected every feeling before settling in his own mind the parts which were to be allotted to them in the action of the plot. Mr. Warren was a psychologist in days when psychological inquiry was less a requirement of the novelist's art than at present. The story of the period depended for its success less upon the study of character than upon novelty of plot and energy of action, and we do not hesitate to trace the part which mental analysis now occupies in fiction in some measure to the influence which the delicate studies in the "Diary" soon began to exercise upon literary taste. Since the days of Richardson, scarcely any English novelist had studied human nature with the same minuteness and care, or had given the same attention to the proper coördination of the affections with the requirements of literary art; and, like Richardson, Warren not unfrequently falls into the mistake of making his readers a party to his analytical investigations, instead of placing merely the results before them. But though the detailed exposition of feeling which characterizes so prominently all Warren's novels may be occasionally pushed to such a length as, in the case of a less-gifted writer, might run the risk of impinging on the reader's patience, it tends greatly to preserve the illusion of naturalness and probability which we never miss from his creations. In this way the passages from the "Diary" come to have all the *vraisemblance* of a real record of medical experience. So powerfully is the mental side of suffering delineated, that we scarcely notice that its physical aspects receive a somewhat slight treatment. But though with our knowledge of the authorship, we can detect professional trippings, we must still wonder at that fulness and diversity of medical knowledge which were sufficient to impose upon the faculty of the day.

It would be superfluous on our part to recall the testimony which particular passages of the "Diary" bear to the literary powers which Warren had matured at that early age. In treating of a book so universally read, the critic has no need to refer to the evidence on which his judgment is based. Yet we cannot help feeling that we are arousing pleasant as well as tender recollections in the minds of old readers of Maga, when we mention some of the more striking scenes in which the physician took part. Who that has read "The Scholar's Deathbed" will ever forget the painful picture of a life unable to divest itself of its ruling passion for thoughts befitting the verge of the unseen world? The miserable termination of the "Man about Town's" career, with the loathsome picture of the grosser vices and their punishment, does not take a less-firm hold of the memory; and there is probably no "passage" in the whole of the "Diary" that better illustrates Warren's power of securing the whole of his intended effect without entering upon descriptions from which the sensitive mind might be in danger of revolting. "The Statesman," which seems to mix up so strangely the stories of Canning and Castlereagh, and in which we can hardly distinguish between what is taken from history and what comes from the imagination, is another sketch which the mention of the "Diary" will at once bring back to the remembrance of those who have read it. Another paper, "The Martyr Philosopher," in which Warren deals with a subject that always presented a powerful attraction to his genius — the effects of unmerited misfortune upon a pure and noble mind — is one of the finest specimens of vivid description combined with pathetic power that he has left behind him. He himself tells us, with pardonable pride, in his preface to one of the later editions of the "Diary," how an excellent nobleman, since dead, was so much interested in this paper that he wrote to the conductor of this magazine, asking permission to reprint it, at his own expense, for circulation among the upper classes of society. But what need have we to discuss individual stories, when the whole of the "Diary" itself bears a far stronger testimony to his

literary genius, high purpose, and warmth of heart, than it would become us to offer to one whose fame is so closely bound up with our own? It will suffice to say, that the "Diary" at once took a high place, not in our own literature alone, but with American and Continental readers, to whom reprints and translations speedily introduced it; and this position it has continued to maintain amid the many inducements which contemporary literature holds out to make us forget the works of preceding generations.

In "Ten Thousand a-Year," next to the interest of the plot, to which Warren gave so much thought and study, the powerful cast of characters constitutes its most notable feature. Amid a larger crowd of actors than we generally meet with in the pages of a single novel, there is hardly one whose outlines are not filled in with sufficient distinctness, even if only by a few graphic dashes of the pen, to give it an individuality and lifelikeness that retain a firm hold of the reader's recollection. There is a host of lay figures who, like the Toady Hugs, Smirk Mudflints, and Dismal Horrors, are simply brought on the scene by way of interlude between the graver business of the piece, to be ignominiously kicked off it; there are many sketches from contemporary life, in the fidelity and justice of which the world has had no difficulty in identifying the originals; but there are also a number of creations that offer ample attestation to Warren's powers as a delineator of character. Of these we can only notice two, which are beyond question his masterpieces. Exception is frequently taken to the portrait of Aubrey as a strained ideal, whose virtues are pushed to an excessive and improbable degree, and whose patience under his tribulations seems so unnatural, that the reader is apt to lose his own patience in his behalf. Those who go away with this impression can hardly have understood the principles upon which Aubrey's character has been formed. It is not merely to serve as a foil to the worthlessness and selfishness of Tittlebat Titmouse that Aubrey has been endowed with virtues that may appear at first sight to be superhuman. The oft-quoted lines of Horace, which supply a motto to the novel, indicate the keynote in unison with which the chords in Aubrey's character have been struck. The author's design was to show that a mind regulated by principle, refined by philosophy, and fortified by the teachings and the hopes of Christianity, had in itself resources against any change of fortune. And how well he has done so! If the heroism and patience and gentleness of Aubrey are unnatural it is surely a matter of deep regret; and we rejoice to think that English society, with all the hollowness and imperfection that are laid to its charge, can afford many proofs that Warren has not conceived a character too ideal for human nature.

If either of the characters is overstrained, it is that of Gammon. Such a Satanic combination of lofty intellect and daring purpose, with deceit and baseness, had hardly before been depicted in prose. And as with Satan, the character of Gammon is pushed to a point where we are attracted, instead of repelled, by its hideous proportions. When contrasted with the sordid, grovelling rascality of Quirk, and the petty chicanery of Snap, the smooth and easy-flowing guilt of Gammon seems almost venial; and it is not until we remember that it is his directing mind keeps these tools at work, that we are able to view him with the reprobation which he deserves. However despicable and worthless Tittlebat Titmouse may seem, we must always remember that he had Gammon for his evil angel, and that it would have been utterly impossible even for a better man to have turned out well under such a master. And it is not until Gammon is brought into contact with a mind so pure and noble as that of Aubrey that the full loathsomeness of his nature stands revealed. As in the case of Aubrey his whole strength had been derived from his firm convictions of religious truth, so the character of Gammon forcibly illustrates the effects of the absence of any guiding principles higher than self-interest and expediency. So irresistible is his villany that we cannot help being fascinated by it; and Warren himself seems to have fallen in some degree under the spell of his own creation, for he provides him with a termination to his career at once more dignified and dramatic than that vouchsafed to his wretched associates. We would have been glad, if the limits of this notice had allowed of it, to forget the career of Gammon in the recollection of Kate Aubrey, Dr. Tatham, and the other pleasant characters met with in "Ten Thousand a-Year." Our regrets are, however, the less that the reader will readily learn to love and appreciate these for themselves.

Outside his family and the wide circle of his friends, there is no place where Warren's loss will be more marked than in the Temple Church. In the benchers'

seats he was one of the most familiar figures; and as a member of the choir committee he took a great interest in improving the vocal service — a task which his delicate ear for music well qualified him to discharge. The allusion made by Dr. Vaughan, the master of the Temple, on the Sunday after his death, was as well merited as it was appropriate, and must have gone at once to the hearts of the audience. Those who only saw the outside of Warren's character must have been little able to appreciate the serious depth of his nature and the vein of sincere piety that lay within; but we who knew and loved him well, can testify from our hearts to the truth of the reverend master's tribute to the memory of our dear old friend, with which we may be permitted to close this imperfect notice. Speaking of the deaths of Mr. Ward Hunt and Mr. Warren, Dr. Vaughan said: —

"Many things conspire to make the word to-day vocal. It is a parting day. It is a closing service. "Who knoweth what a day may bring forth?" how much more a period of thirty days, or of sixty? But our last services of this season are services of mourning. Two chief men have fallen in our Israel — to-day the dirge is our music. One of these was less to us than to the country. His funeral oration was spoken in Parliament. Long years ago he forsook law for politics; his renewed connection with us was but a compliment to the statesman. Such a connection is honorable to both parties — it dignifies the man, it strengthens the society.

"But the other lost friend was a very part of this 'house.' You know how he loved it! This church has never looked the same since he left it — left it, not knowing that it was forever, on the eve of last Christmas. Who shall replace him in that seat, where we can see him still — that grey head, that keen eye, that fixed, that rapt devotion? Some of his last thoughts were with us — he is gone where there is 'no temple.'

"He was a man of mark in his generation. The memory of my boyhood goes back to the intense interest, the curious mystery, of his first work of fiction, combining so strikingly his two educations — the training of the physician, and the training of the lawyer. Honors fell thick upon him in that brilliant seed-time; he would have been more than man if they had not — just a little — elated him. His genius was less to us than his character. The servants and officers of this house can tell how kind he was. *I* can tell. He leaves behind him in his house those who hallow — who almost idolize — his memory; well may they! These things are too sacred for public mention. I may but tell in one last word, how gently, how lovingly, he sank gradually to his rest, amidst thoughts and looks, all of peace, all of blessing. Two days ago it was given me to speak the last words over him in his beloved son's village churchyard, where love will still survive him, as he lies waiting FOR 'THE GREAT EASTER'!"

From The Contemporary Review.

FRENCH CHATEAUX OF THE RENAISSANCE.

(1460–1547.)

BY MRS. MARK PATTISON.

THE architectural activity of the French Renaissance is of the greatest moment in its civil aspect. The secular character of the revolution in thought and manners found expression in the erection of palaces and châteaux. The religious architecture of the day only reflects social changes which took their first shape in civil monuments. It is therefore to these civil monuments that we must look for illustrations of the nature and succession of the changes which go to make up the history of the movement in its relation to architecture.

The French Renaissance may be said to embrace two distinct periods. The first extends from the middle of the fifteenth century to the reign of Francis I. The second ends with the last of the Valois (Henri III., 1589). Each period has peculiar and characteristic features; features which are not only indicative of the artistic revolution which was afoot, but of the political and social change of which that revolution was a part, and which are plainly affected by the influence which the centralization of government had upon every branch of art. The king was at last king, and the court took the initiative both in politics and arts. The finest châteaux built in the sixteenth century are the châteaux of the king, or of those princes who stood nearest to his throne. The progressive alterations and developments which transformed the fortified castle of the Middle Age into the prototype of the modern palace may be traced, one after another, in each succeeding building, and the history of these alterations and developments is the history of French architecture as fashioned by the Renaissance.

During the first period, the period

which begins even in the days of Louis XI., the transition from the *maison forte* to the *maison de plaisance* was accomplished. The old traditions of defence were shaken off. During the second period, which ends with the extinction of the house of Valois, the central idea of the *maison de plaisance* was elaborated till it touched the highest point of luxury and convenience permitted by the resources of the time.

The actual change in construction, necessitated by the changes in requirement, was accompanied by a great change in style. This change in style is so distinctly marked by different features in the two succeeding periods that some have regarded them as independent and separable epochs. They have called the first the French Renaissance, and have abruptly cut off the men who worked during the reigns of the Valois from national traditions, looking on them as forming, in all branches of art, a bastard Italian school. They have depicted their work as animated wholly by foreign inspiration, the importation of which acted injuriously on the characteristic promise of French art; and for this importation Francis I. is regarded as mainly responsible.

The theory is certainly false as regards French architecture. If we examine the buildings erected during this time of more than a century, there appears no evidence of forced and sudden transition. It would rather seem that the elements of change were slowly absorbed by a simple and natural process. From Langeais to Gaillon, from Gaillon to Azay le Rideau, from Azay le Rideau to Ecouen, the passage of a gradually developing style can be traced. First come minor modifications of detail which herald great constructive change, and then great constructive change itself.

The type of that which should be, was revealed in the drawings of Fouquet (painter to Louis XI.), thirty years before the stubborn stone began to yield to the force of new impressions. When Fouquet filled his backgrounds with architecture, the fashion of which expresses an ardent desire for classical symmetry and perfection, Gothic in France was prostrate beneath the wealthy burden of decoration which it had heaped upon itself. All outline had disappeared beneath an accumulation of frail and toylike prettiness. The costly church, erected by Margaret of Austria at Brou, in the decoration of which some of the most distinguished workmen of Tours were employed, is the helpless protest of an expiring style.

Michel Colombe, who had labored with Fouquet in the pay of Louis XI., lived on into the sixteenth century. In 1511, at the age of eighty, he designed the centre tomb, the tomb of Philibert of Savoy, which stands in the chancel of the church of Brou. He followed in this work the set precedent of Gothic fashion as he had seen it in the "*sepultures de feuz mes-seigneurs les ducs de Bourgoigne*," when, as a boy, he worked at Dijon under those "*souverains tailleurs d'ymaiges maistre Claux et maistre Anthoniet*" (Antoine le Mouturier), but on the minor details he engrafted the delicate arabesques and surface patterns which all men had then begun to love. In the tomb of Margaret herself, the signs of the time are even yet more evident; the border of her dress, her pillow, are all patterned with interweaving of Renaissance ornament; the very columns which support the upper shafts have undergone strange modifications, and their surface is subtly varied with threading of figured lines.

Already at Tours the effort was being made to carry matters a step further, to find the lines which should fitly enforce these lovely details, and at the same time to adapt these details to architectural features rapidly undergoing important alterations. The battlement, for instance, which had defended a castle of the previous century was destined to become the cornice, which, rich with moulding and ornament, surmounted, like a crown, the *maison de plaisance* that was to be. Elsewhere in France the same process was going on, but Touraine, where the court long dwelt, was necessarily the centre of the movement. It is to Tours that we look, until, with the commencement of the second period, the centre of activity is completely transferred to Paris. Gaillon, Chenonceaux, Azay le Rideau, Chambord, all arose before the sure force of political centralization had finally sucked into the capital the rich springs of provincial energies. Before many years elapsed each of these monuments was re-handled by Parisian architects, and brought as near as might be to the point of fastidious symmetry required by Parisian eyes. But when Bastien François built the cloister of the chapter of St. Martin of Tours, and Pierre le Nepveu worked at Chenonceaux, the school of Touraine was still holding its place with honor, and had also absorbed the flagging strength of a formidable rival.

The ancient vigor of the school of Burgundy had been slowly and certainly

exhausted in disturbing struggles for a political independence, the loss of which was plainly inevitable. Claux and Anthoniet, the men whom Colombe mentions in his contract with Margaret of Austria as the most skilful sculptors in France in the middle of the fifteenth century, were the last names of the Burgundian school. Although a Breton born, it was by them that Michel Colombe was trained. But Michel Colombe did not remain in Burgundy. He left Dijon for Tours, and took service with Louis XI. The school of Tours did not owe its existence to, but it received a renewal of energy from, the breaking up of the Burgundian centre. The works of the artists of Dijon are impregnate with the sentiment of the Flemish school, to which they were in truth affiliate. The artists of Tours were of a different ancestry. Once introduced into their circle, the Burgundian artist received its inevitable stamp. Touraine had never been in permanent contact with northern influence, but had long enjoyed a frequent, if not continuous communication with Italy. Travellers coming from Rome, and landing at the port of Narbonne, passed this way on their road to England, or even to Paris. Now and then the artists of Tours themselves, as Fouquet, visited Rome, and before the close of the fifteenth century many Italian artists had, in their turn, made their way into Touraine; and in 1502 the château of Bury, now in ruins, was built for Florimond Robertet by an Italian architect whose name has perished with his work.

This occasional commerce with the south brought to the men of Tours moments of precious insight, by which they were naturally well fittted to profit. From the north they seem to have been practically cut off. The journey into Flanders is spoken of by Michel Colombe in a letter already quoted, as a voyage unknown in those parts, and not to be undertaken unless a competent person be sent to guide travellers thither. This was probably no disadvantage, for so the school was left free to develop in the direction best suited to it, only receiving now and again from Italy a stimulus not too foreign to be well assimilated, and which inspired the keen French senses with a richer passion.

A few years after the building of Bury arose the cloister of St. Martin of Tours, and other buildings of very decided character. But the triumph of the new style was not to be rapidly complete. M. Lassus, in his valuable criticisms on the architectural designs which occur in the "*Hypnerotomachia Poliphili*" (1467), has remarked that the author solves the structural problems which they contain by the procedures of that very Gothic which he at the same time broadly condemns. Even so, in many of the chateaux of Touraine, the architect relies in construction on that very school the principles of which he denies in every minor detail. Here and there, as at Azay le Rideau, a boldly innovating hand may be seen at work; but for the most part throughout this transitional period men are feeling their way towards constructive change, not daring to touch essential features, but tentatively busy on the transformation and adaptation of minor details. Chambord is truly typical of the earlier stage of the movement. In the general arrangement, in the *ordonnance*, late Gothic caprice and fantastic love of the unforeseen rule triumphant. The older portions of the château, the seemingly irregular assemblages of half-Oriental turrets and spires, are debased Gothic full of audacious disregard of all outward seeming of order. The architect, instead of seeking to bring home to the eye the general law, the plan on which the whole is grouped, wilfully obscures and conceals it beneath the obviousness of the wild and daring conceits heaped above. But even here as at Brou, the mark is set which promises other days. It is the transition moment; Gothic fancy may wildly distribute ornament and obscure design, but the ornament which it distributes is Gothic no longer. The *obscœna* which haunt the cathedrals of the Middle Ages, which infest the earlier towers of Amboise, and linger defilingly about Gaillon, these are banished. In their place come faint foliated traceries and arabesques in low relief, enriching every surface, disturbing none, moving with melodious adaptation of subtle line, winding, falling, rising in sympathy with every swiftly ascending shaft or slowly hollowing curve.

Each success gave fresh courage for fresh audacity. The movement fully developed itself, and grew to the full knowledge of its secret strength. The aid of ornament was now rejected, except to accent the intelligible triumphs of construction. At last arrives the culminating moment — the instant which contains the fusion of perceptions excited to the most exquisite point of sensitiveness with the vital intellectual forces which invigorate and control the whole. With this moment the name of Francis I. has had the acci-

dental good fortune to be associated, but the art-activity of his reign was not the arbitrary creation of despotic free-will, it was the natural result to which previous conditions had been tending. When Francis sent Le Fevre d'Etaples to collect MSS., or bade Primaticcio bring works of art from Italy, or summoned Leonardo from the ruined city of Milan, he was but giving royal effect to an impulse shared by all about him. The currents of the day carried him away; he neither controlled nor could he direct their course.

Before the accession of Henri II. took place (1547), the character of future effort was irrevocably fixed. The transitional air which much of the work done during his father's reign still wears had finally disappeared. Paris now enjoyed that established pre-eminence which Tours had so long and so honorably maintained. The names of local artists no longer occupy the leading place on the lists of those engaged in carrying out work of importance. They are replaced by Parisians; if not indeed Parisians by birth, Parisians by training. Instead of Bastien François, and Pierre le Nepveu, we have Bullant, Lescot, and De Lorme; instead of Chambord and Madrid, Ecouen, Anet, and the Louvre.

In the attempt to sketch that earlier period which, beginning after the middle of the fifteenth century, closed with the death of Francis I., we find that though many buildings of that epoch shows signs of strongly individual treatment, nothing is to be learnt concerning the lives, nor can we, except in rare instances, even identify the names, of those who built them. All that can be done is to trace the tendencies expressed in the buildings themselves, selecting in their order some of the most typical monuments of that district which was the cradle of the Renaissance in France. In so doing, it will be necessary to treat each as if it were indeed the product of a single epoch and of a single mind, but this is true only in a strictly limited sense. Each building was an agglomeration of work done by different hands at different times. Not even Chambord was the sole creation of Francis and his architect, Pierre le Nepveu. Many a stone bears the monogram of Henri II., and the names of Primaticcio and Philibert de Lorme are associated with certain portions of the building. But at Chambord, and even at Chenonceaux, the characteristic form had been determined by those who began the work. Chenonceaux owes much more to later additions than Chambord, yet the general character of Chenonceaux is unmistakably that of a château built under Francis I. The after-touches, such as the gallery-bridge built over the Cher by De Lorme for Diana de Poitiers, or the chapel thrown out by Catherine de Medicis, show plainly as after-touches — as so many distinct and separable additions, the value of which we estimate having always reference to the main intention as declared at the very commencement. It is the evident predominance of this main intention which justifies the consideration of each building as belonging to the epoch in which it originated, so that it may be counted as of that epoch, all later additions being reserved as exceptions always made, if not always specified. Beginning with Langeais, an almost pure example of the fortress-château (1460), we pass the cloister of St. Martin of Tours (1508), taking next Blois and Chenonceaux (1515), then the Hôtel Pincé at Angers (1525), Chambord and Azay le Rideau (1526), until at last with the building of Madrid and the works of Fontainebleau, we find the centre of activity wholly transferred to Paris, and a second period commencing with the accession of Henri II.

Langeais is a fortress of the Middle Ages, but it bears within its very walls the traces of coming change. It stands on the banks of the Loire, not far from Tours, and is one of the finest existing examples of a French castle built about the middle of the fifteenth century. Pierre de la Brosse, barber to Louis XI., is said to have begun laying the foundations, but there ended his share in the construction, which was taken up and completed by the next possessor, Jean Bourré, minister to the same king. The problem which the architect had to solve was how to conciliate the necessities of defence with the already increasing demands of domestic life. The system on which the fortifications were planned seems to have been curiously behind the science of the day. The effects of gunpowder are, it is said, left wholly out of calculation, but every means of repelling attack by scaling-ladders has been provided. One gate only affords access to the interior court, and that gate is flanked by massive towers, and protected by a portcullis. The interior court is almost wholly confined by the buildings around it, the high walls which defend it on the outside are cut up at well-guarded angles by massive towers, and pierced at irregular intervals by narrow openings. The whole length is crowned

by heavy machicolated battlements. The aspect of the exterior is severe, but the façade which looks upon the court within is not wanting in elegance. Four small towers, each of which contains a spiral staircase, break the monotony of the front, and give access to the different stories. The interior space is divided out in the simplest fashion, and the arrangements adopted on the ground-floor continue in unvarying repetition tier above tier. But above, along the roof, run no heavy battlements; a bold projecting cornice takes their place in surmounting the wall, and over this rises a sharply pointed roof, the outline of which is broken by towers, and pierced with chimneys and dormers.

This cornice in the interior court gives the first note of change, and the way in which it was developed out of the battlement is curiously illustrated by the Tour des Gendarmes at Caen, built towards the close of the fifteenth century. Each battlement in this tower contains a sculptured medallion. Thus one has Janus, another the heads of a woman and two children, a third a woman's bust. The next step was to fill up the notch between the subjects and make the mouldings continuous; we then get the first form of the cornice, which rapidly became one of the most important and distinguishing features of every considerable building. At Langeais it replaces the battlements on the walls of the inside only, but it was destined soon to replace them on the outside also. At Chenonceaux, at Azay le Rideau, at Blois, at Chambord, its bold projecting lines encircle each building with a crown. The fresh spirit, which has taken the direction of the failing energies of French art, next commands yet another change. The sculptured dormers which are handed down by Gothic tradition are grouped with a symmetry hitherto unknown, and the *croisées*, which take us back into the far-off thirteenth century, are ordered inexorably one above the other. Not only do all openings at irregular intervals disappear before the growing exigencies of an instinct which marshals even the smallest details into fitting place within an ordained framework of well-considered lines, but gradually all these openings are placed so as to give the perpendicular lines of the general design, and are thus opposed to the sense in which they had been previously taken, for in Gothic work openings, when disposed regularly, are almost invariably made to indicate horizontal bands. Horizontal bands, when required in Renaissance work, are obtained by the accentuation of the division line between the superimposed stories of the building. Both these peculiarities are to be seen in the still-existing remains of what was once one of the most beautiful constructions left by the Renaissance in Touraine — perhaps even in France — the cloister of St. Martin of Tours. "On the 24th of May, 1508," so runs the entry in the register of the corporation, "the chapter commences building the beautiful galleries, such as they are." Of these beautiful galleries, the eastern side has alone survived. It is little known, and has, fortunately, been left to go quietly to ruin; but even in its present condition, the sculptures with which it is enriched, the bas-reliefs, arabasques, and medallions which fill the delicate lines of the pilasters and arcades, testify to the brilliant and decided character which the Renaissance early assumed in Touraine. It is conjectured that the credit of this work, which was executed just after the completion of the château of Bury, is due, to Bastien François, nephew of Michel Colombe, for we happen to know from the cathedral accounts that he held the appointment of architect to the chapter in 1511, when this work was still in progress.

But notwithstanding the distinct and positive assertion of certain leading principles made by the architect of these galleries, they have yet to win their way with other men. The foundations of the château of Chenonceaux were laid in 1515, the year of the accession of Francis I., by whom it was acquired in 1535.* The name of the architect has never been positively ascertained, but there is reason to suppose that he was no other than Pierre Nepveu dit Trinqueau, who became at a later date *maistre de la maçonnerie du batiment du chastel de Chambord.* In the plan of the building, the same wild, fantastic spirit which lends its unreasonable charm to Chambord still pierces sharply through the later refinements and additions with which the original work has been overlaid. On approaching the château from the eastern side, the eye is caught by a confused medley of spires, minarets, and cupolas; the lines of the roof seem lost beneath the luxuriant and disorderly growth of shafts springing towards the sky. Here is the same quality of harmonious extravagance which in a few years later was to rule with royal liberality at Chambord. Tourelles break out from the massive walls at points where

* Arch. du Chât. de Chenonceaux, p. 13.

they cease to suggest the flanking towers which they originally replaced. Every turret, every pinnacle, is crowned with some fantastic ornament, and the angles, at which gables jut forth here and there from the pierced and carved work which surrounds them, seem to be selected with the express intention of misleading the eye, so as to hinder rather than aid it in divining the general purpose of construction, but the determined lines of the heavy cones which surmount the larger towers, thrust through the ornaments which flame about them and bring a sense of order into troubled places, giving an accent of precise intention even where every element of design seems animated by a spirit of wilful fantasy.

The surprises, the accidents of the interior multiply with incessant mystery. The numberless halls, chambers, cabinets, present the most striking signs of diversity both as to size and character. The infinitely varied necessities of a complex civilization have begun to make themselves felt. M. Michelet, writing of Chambord, remarks that it is neither a Gothic design nor an Italian palace. The Italian palace is roomy, but has few rooms: Chambord, on the contrary, affords every facility not only for the life in common, but also for the life apart. The convenient passage, the double staircase, permit of every freedom for pleasure, and M. Michelet sees in these arrangements a reflection of the state of health and temper of Francis on his return from Spain. But this idea of the secular convent which should bring together under one roof halls of state, private apartments, secluded cabinets, and hidden cells, was not peculiar to Chambord; it is the ruling idea at Chenonceaux, at Azay le Rideau, at Nantouillet, and reaches its full proportions in the splendors of Anet and Ecouen.

It is not to the liberties of pleasure only that these buildings afford all opportunity. At the court of Margaret of Navarre, Des Periers complains that "*il y'a si grand' presse de gens ceans qu'on ne se peut tourner.*" His motto is a cry for "*loysir et liberté;*" he entreats for freedom, for time, specially for *room*. These numerous and separate chambers gave room, they gave freedom from the overbearing pressure of other lives, they permitted the individual life to develop even in the midst of a common society. When the queen of Navarre sketches a division of the day for the courtly company of the "Heptameron," she allots a certain space to be spent by *chascun dans sa chambre.* The demands of a more complex and luxurious civilization coincided with the necessities of the growing intellectual activity of the epoch. The fortress of Louis XII. was built to house one noble family with its officers, guards, and dependents; the palace of Francis I. gathered within its walls a congeries of families of which the royal house was but the centre. Social life assumed an importance hitherto unknown in this assemblage of great personages of both sexes. A few *hautes chambres tapissées* might suffice for the needs of Jean Bourré when he raised the château of Langeais, but the wants of Thomas Bohier, as they stand expressed in Chenonceaux, were far more complex; and not only do the châteaux of great nobles give evidence of the change in the manners of the day, the less pretentious hotels and country houses of private persons present the same striking differences. The Hôtel de Beaune at Tours, the Hôtel de Bourgtheroulde at Rouen, and the Hôtel Pincé at Angers, were not built by princes, yet each provides according to its space and means for the separate as well as for the common needs of many dwelling beneath the same roof.

Whilst Chenonceaux was building Louis XII. died (1515), and the reign of Francis I. began. The building of the eastern wing of the château of Blois, commenced by Louis, was already far advanced, and to Francis fell the speedy honors of its completion. The names of the architect who planned and of the sculptors who decorated this splendid monument of the earlier Renaissance are alike unknown to us. The main features are such as are common to other châteaux in the valley of the Loire; but there are important though minor differences which specially individualize it. The architectural scheme is very simple. Three rows of pilasters are superimposed one above another. At about two-thirds down the front the open spiral staircase juts out and towers upwards. It seems at first to stand free, breaking up the even succession of small columns and their perpendicular descent with the bold projection of its octagonal lines. But above it is embraced and caught into the whole mass by the broad crowning cornice which gathers within its strengthening bands every various curve. The sculptured dormers fret along its edge, searching the air with their pointed tongues, and twice the carved cases of the chimneystacks break aloft through the roof, like towers. So far this eastern façade at Blois brings to mind the general

type which may be recognized in other châteaux of the district. It is but by the grave simplicity of the *ordonnance* that Blois appears to detach itself from the rest, and to stand somewhat alone. A disciplined intellect, disposing soberly of the means at its command, here carries on the work begun by Bastien François in the cloisters of St. Martin. It may be Bastien François himself, or that unknown Italian who raised ten years earlier the beautiful chateau of Bury, now lying a heap of ruins on the shores of the Cissé. The fine and choice instinct for proportion which makes every disposition, the symmetrical order preserved in the distribution of ornament, show at least that the architect of Blois had wholly given himself up to the intention of the new movement.

The division between the stories, plainly defined at Blois, is yet more strongly marked in the little Hôtel Pincé, built at Tours for Pierre de Pincé, *lieutenant criminal du seneschal d'Anjou* about 1525. The effect of the horizontal bands of ornament introduced for this purpose is vigorously counteracted by the introduction of rapidly descending perpendicular shafts, which span the wall curtain, group the openings, and keep the whole building together. This is precisely the mode of treatment on which the chief architects of the second period wholly rely. It is the method in virtue of which De Lorme triumphs at Anet, and Bullant at Ecouen. At Chambord, which was in building a year or two later (1526), the storeys are, it is true, very forcibly indicated, but the whole building is pulled together in Gothic fashion by the towers of the *corps de logis*, and by those which flank the wings or pavilions which stretch out on either side of the main body. In a building of the size of Chambord the result of this treatment is scarcely satisfactory to the eye. The lines of the wings to right and left of the main body seem to droop away from the heavy towers on either side like the lines of a suspended chain. At Chaumont, indeed, De Lorme depends wholly on the corner towers for the necessary amount of perpendicular ascent, but Chaumont is not a palace. It is a château of ordinary dimensions, the whole extent of which might be enclosed within the space occupied by the *corps de logis* alone at Chambord. Inside the court the unpleasant effect disappears, for the apparent length of the wings is greatly abbreviated by the action of the two spiral staircases which run up outside the building at the internal angles, on opposite sides.

It is not now possible to approach Chambord carrying in our eyes a vision of the great Renaissance château, as engraved by Du Cerceau in his "*Plus Excellens Batiments de la France*." Burdened by the weighty labors of Louis XIV., effaced by eight improving years at the hands of Stanislas Leczinski, mutilated by Marshal Saxe, the Chambord which we now go out from Blois to visit is not the Chambord of Francis I. The broad foundations and heaving arches which rose proudly out of the rolling waters exist no longer to the eye. The truncated building squats ignobly upon the turf, the moat is gone, gone are the deep embankments crowned with pierced balustrades, gone is the no-longer-needed bridge with its guardian lions. All the outlying work, which gave the actual building space and dignity, has vanished, and we enter directly from the park outside to what was once but the inner court of the château. It is not until we stand within this inner court, until we have passed through the lines of building which enclose it on the western side, and which show the unmistakable signs of stupid and brutal destruction, that we can believe again in the departed glories of Chambord. Lippomano, ambassador from Venice to France during the reign of Henri III., as he journeyed to Paris turned out of his way to visit Chambord.

On the 21st [he says] we made a slight detour in order to visit the château of Chambord, or more strictly speaking the palace commenced by Francis I., and truly worthy of this great prince. I have seen many magnificent buildings in the course of my life, but never anything more beautiful or more rich. They say that the piles for the foundations of the château in this marshy ground have alone cost three hundred thousand francs. The effect is very good on all sides. . . . I counted one hundred and eighty-six steps in the spiral staircase which occupies the centre; it is constructed with such skill, and is so convenient, that a party can go up one side and down the other, six or eight abreast, at a time. . . . The number of the rooms is as remarkable as their size, and indeed space was not wanting to the architect, since the wall that surrounds the park is seven leagues in length. The park itself is full of forests, of lakes, of streams, of pasture land, and of hunting grounds, and in the centre rises the château with its gilt battlements, with its wings covered in with lead, with its pavilions, its towers, and its corridors, even as the romancers describe to us the abode of Morgana or of Alcinoüs. More than half remains to be done, and I don't believe it will ever be finished, for the kingdom is completely exhausted by war. We left much marvelling, or rather let us say thunderstruck, and we

arrived that evening at Blois. ("*Documens Inédits*," v. 2, p. 300.)

To destroy the character of this château from the outside was not difficult. It was not easy to tame the rude defiance of Vincennes, or give facility to the reserved and guarded approaches of Gaillon. Solid rectangular towers, heavy machicolations, and ponderous drawbridges offer a stubborn resistance to schemes of ruthless innovation; but Chambord was no fortress, it was a country house. The very site is motived by no other reason than the pleasures of the chase. The battlements of Gaillon gave back the echoes of the trumpet, but the galleries of Chambord resound with the huntsman's bugle. The construction of these galleries in itself points to the rapid progress of social change. There are not only such as may be called covered passages communicating from the spiral staircases with the rooms on each story; galleries which have their special cause in actual need and daily use; but the roofs of the range of one-storied buildings which connect the side wings of the main building on the north and south, and which run along the western front, are finished up from the cornice with a balustrade, and turned into a promenade for courtiers. The women whom Francis I. was blamed for bringing about the court throng the spaces of Du Cerceau's cut, idling with their fans, attended by their servants, and followed by their little dogs. The drawbridge of the past age is already replaced by a fixed bridge, and a couple of lazy sentinels find their occupation in watching the groups who saunter by the side of the moat, the waters of which rush by at full speed, sending coolness into the thirsty air.

Yet, in spite of these marked indications of change the ancient spirit lingers. The unrestrained freedom of grotesque caprice finds expression everywhere, even in those later portions which belong to another reign. Pierre le Nepveu has left on all his work the imprint of profuse and fantastic force; the wild outlines of his cupolas strike the sky with an audacity which seems to defy the adverse criticism of those who moved within the limits of more cautious rule. Symmetrical balance for which the masters of a succeeding era sought, and by which they strove to harmonize every portion of their design, obliged them to reject the aid of those varied resources which Nepveu shrewdly marshalled with a vigorous hand. Chambord is a brilliant example of transition. The early Renaissance is there to be seen, taking on itself the burden beneath which had sunk the failing forms of the Gothic spirit. But the intention of the work is wholly foreign to the main direction taken by the new movement. If we turn from Chambord to Azay, we shall see the point which was actually being made by others, whilst Nepveu was engaged in the execution of a project condemned, by its very nature, to remain, in spite of the wonderful genius lavished upon it, an unfruitful *tour de force*.

The graceful château of Azay le Rideau rises directly out of the waters of the Indre. It was in actual progress during the earlier years of the works at Chambord. It is built on two sides of a square, one side of which is prolonged somewhat and then abruptly truncated at an outward angle. This unsymmetrical ground-plan is a trace still retained of earlier days, which are also faintly recalled by the elegant tourelles, carried on corbels, which complete each angle. In every other respect, Azay is a continuation of the intention manifested in the eastern wing of Blois. The openings, like those of the Hôtel Pincé at Angers, are grouped within pilasters one above another so as to strengthen with their perpendicular lines the broad and outspread surface. Ornament, with one exception, is reserved to accent the bands of the different stories, and to enrich the cornice. The one exception is important, the very pretence of defence having been abandoned: the entrance is made by a high portal, and this portal, together with the staircase which it supports, is magnificently enriched with carving. The first frieze shows bas-reliefs of the salamander of Francis I., and of the ermine of Claude of Brittany his wife, who lay dying at Blois in July, 1524, when this château was still in course of building. On the plinth which supports the two windows of the pediment the same devices appear, then a little arcade connects the ground-floor with the upper stories, the pilasters and other members of which are covered with arabesques which may challenge comparison for beauty of design with the most exquisite passages produced at a later period.

From Azay to the château of Longchamps or Madrid we pass with ease. But the erection of this château in 1527 marks the transference of the chief activity to Paris, and the building itself shows important modifications, both in the fashion of the exterior and in the disposition of the internal arrangements. Azay, though minor portions were added at a later period,

may be considered to have been practically finished before the building of Madrid was begun. Francis had undertaken the works at Chambord in 1526, and throughout succeeding years he went on building there and elsewhere with incessant rapidity. In February, 1527, fresh alterations were set on foot in the Louvre. The great tower, the destruction of which is deeply lamented by L'Etoile, was pulled down to make room for these improvements. But Chambord and the Louvre together could not absorb the restless energies of the king. Before the close of the same year the foundations of Madrid were laid. The château of Longchamps, in the Bois de Boulogne, which was afterwards called Madrid, is to us now no more than a name, but on this château Francis lavished the utmost resources of wealth and art. Du Cerceau has again preserved for us the original outlines. They are expressive. There is no room for official display or state ceremonial: we are within the consecrated precincts of private pleasure. The covered galleries, running round outside every story, are pleasant places for idle enjoyment, a sheltered lounge where may be watched out the long course of a summer day. The interior is destined to be filled with light, and brilliance, and air. The sun streams in through numberless panes of fixed glass, wooden shutters are placed beneath, and they fly open at the gust of fresh winds blowing past them. This gay summer-house is full, too, of little touches of personal fancy, and marks of individual caprice. The ceilings of the small rooms which flanked the great hall on either side were placed at half-way of the whole height. A secret chamber occupied the space above them. Here Francis could creep unseen, by means of staircases hidden behind the imposing chimneypieces of the rooms below; the object of all this contrivance being to afford, says Du Cerceau, a retreat to the prince whence he might at any time, without being seen, play the spy upon those who met and talked in the great hall below.

But the distinguishing feature of the internal arrangements, and that which was then regarded as a specially remarkable innovation, was the commodious completeness of the offices. They were partly underground, but they were also as convenient and well lighted as the other apartments, and in this respect differed wholly from the sombre and mysterious dungeons which lurked amidst the heavy supporting piles of the château of Chenonceaux. At a later period at Anet, at Ecouen, attention was paid to the offices as a matter of course, but at Chambord, at Amboise, at Blois, special provision for the service was unheard of. The architect provided for the guard-chamber and left the household to seek refuge in the cellar. As for sleeping accommodation, any hole, any bed, was good enough for those in attendance. Des Periers says, —

> En cour pour le beau premier soir,
> Couché fuz comme en un pressoir,
> En lit bien autre que de plume,
> Un petit plus dur qu'une enclume:
> On le peut sentir à s'y seoir.

An improvement in the number and arrangement of the upper chambers had been rendered necessary by the press of nobles about the court, and it finally became an imperative necessity to provide in some measure for the wants of a service greatly enlarged by the train of attendants who accompanied them.

The *corps de logis* or main body of the château of Madrid was flanked by two pavilions, the angles of which were accented only by ordinary projections. This is a noteworthy change in the external plan. The tourelle no longer records the tower which fifty years before of necessity defended each outward point. This feature, which had not elsewhere ceased to be indispensable and prominent, is at Madrid relegated to the unimportant office of carrying certain staircases at the sides. It may be said that Madrid was not raised by French hands, and that we are not justified even in giving it a place among French work. The enamelled terracottas, ornamental tiles, the delicate friezes and medallions, which are to be seen in Du Cerceau's engraving, filling the springing arches of the windows, marking out the stones with brilliant lines of decoration, were, it is true, the work of no other than Girolamo della Robbia himself, who left Florence for Paris in order that he might execute this task. The actual practice of covering the wall surface with a veneer of enamelled tiles was not indeed unknown in France. Two houses at Beauvais dating from about the end of the fifteenth century are often instanced, on the authority of M. Léon Vaudoyer, as still-existing examples; and the tiles with which the façades of these buildings are overlaid are said to be ornamented with little figures enamelled and in relief, so that, in one respect at least, they resemble the brilliant works presenting "all the characteristics of sculpture" which "shone on the walls of Madrid." These relics were destroyed

together with the rest of the château at the great Revolution, and there is no existing record of their fashion, but Du Cerceau reproduced several of the arabesque designs which enriched the tiled pavements of the rooms, and these present those characteristics of delicate elegance and symmetry of arrangement which invariably belong to Italian decorative work, whilst here and there are bits which might rival passages from the hand of that perfect master of the art, Giovanni da Udine. The chimneypieces, too, seem in Du Cerceau's drawings to have been due to the chisels of Italian sculptors. The accent is softer and more languorous than is the wont of definite French speech, but over the accumulated mass of foreign detail the spirit of the soil maintains its ascendency and compels the strange exotic to shape itself anew. The fantastic devices which cover the building *entrelacez les uns les autres* announce the action of a kindred instinct to that which puts forth at Chenonceaux, and prevails at Chambord. In spite of the importation of Italian craftsmen, Madrid became a French château; the ornaments which they designed and the caprices which they invented were alike subjected to the controlling force of French taste, and to the rule of outlines planned probably by a French architect. The name of him who built this china palace has indeed perished, lost in the renown of the decorator, but the elevation, as given by Du Cerceau, has neither the proportions nor the style of Italian design.

It is mere matter for conjecture who were the architects employed by Francis I. on the numerous works he had in hand both at Paris and in its neighborhood, even at this late moment. In the same year, (1527), says Corrozet, that the king commenced the superb edifice of the château of Madrid, "*il fit poursuivre avec diligence les bastimens qu'il avait fait commencer à Fontainebelleau, à St. Germain en Laye, au Bois de Vincennes, et en nôtre ville.*" It has been supposed that Pierre Lescot was the architect entrusted with the alterations going on at Fontainebleau,

chasteau qui s'appelle,
Du gracieux surnom d'une fontaine belle.

Felibien des Avoux seems to have been the first to have put this tradition on record; but he, writing in 1680, has not even the weight of second-hand authority; and had Lescot early given proof of his ability as architect of Fontainebleau, the king would not have sent to Bologna in 1541 for Sebastian Serlio to fill the place of "*surintendant des bastimens et architecte de Fontainebleau.*" Rosso, who held the same post before Serlio, did not arrive in Paris till 1530, and not only was Madrid far advanced before his arrival, but the works at Fontainebleau and the Louvre were also in full progress.

M. Berty conjectures that, as regards the Louvre at least, the additions projected by Francis I. were only carried out on paper. The letters patent which confer on Lescot the whole charge and superintendence of the works, and approve his plans, were only granted by Francis, at Fontainebleau, in the year before his death (1546).* Little progress, therefore, can have been made during his reign with the additions planned by Lescot, and M. Berty supposes that nothing was done before this date, because Corrozet, who, in the 1550 edition of his "*Antiquités de la Ville de Paris,*" says, "*François I. fit faire au Louvre de grandes reparations, et nouveaux édifices,*" is silent concerning them in an earlier edition, that of 1543, although he mentions the destruction of the great tower as a preparation for the execution of future plans. If, then, says M. Berty, Corrozet, who gives these details in 1550, does not give them in 1543, it must be because in 1543 the works of reconstruction had not then begun. But there is another edition of the same book which has escaped M. Berty's notice, a yet earlier edition, the edition of 1532, and in it we find, on p. 49, "*Celluy seigneur (François I.) a aussi fait reparer le château du Louvre de plusieurs riches édifices, lequel lieu il a esleu pour sa demourance.*" From this passage it is plain that Francis had indeed made important additions to the Louvre fourteen years before he sanctioned the plans of Lescot, but it is impossible to say by whom they were conducted or designed. Rosso, it is true, arrived in 1530, two years before the date at which Corrozet writes; but even two clear years would scarcely give time for the erection of "*plusieurs riches édifices;*" and his name is wholly connected with Fontainebleau, where he nearly always resided during his ten years' life in France.

As long as we are dealing with the châteaux of Touraine we half accept the mystery which seems to shroud their erection, as the natural result of their connection with a more remote past. They seem to hang on, as it were, to the skirts of that ghostly Middle Age which is enveloped in even deeper obscurity; but Paris in the reign of Francis I. should be well within the

* *Vieux Paris*, t. xi., p. 440.

reach of modern curiosity. We expect to get easily at definite knowledge concerning its work and those by whom it was done. But again we are forced to acknowledge that often the utmost efforts of search will not even yield a name, and that, if we are sure of a name, we are sure of nothing else. Considerable works were undoubtedly undertaken at the Louvre, at Fontainebleau, at Longchamps (Madrid), and other places, during the first four or five years which elapsed after Francis I. returned from his Spanish captivity (1525); but we know neither by whom they were planned, nor by whom they were executed. One thing only is certain, the number of Italian artists in Paris was not considerable until the sack of Rome (1527) and the fall of the Medici drove them northwards. Such as had come into France earlier, coming in one by one, found themselves absorbed by forces already active, and added only some inappreciable impulse of foreign vigor. After a while, when they flocked in greater numbers, they constituted an individual school, which drew to itself some French followers, but which as a rule was regarded with envy and dislike by native artists. Prior to the coming of Rosso, who was, as has already been said, specially engaged at Fontainebleau, no Italian of note is known to have been employed in directing the works undertaken at the various royal châteaux.

It was in the course of the year 1530 that Maître Roux (Rosso del Rosso) arrived in Paris, where, says Vasari, "*fu con molte carezze della nazione fiorentina ricevuto.*" Francis was very liberal to him. His appointments began with a yearly pension of four hundred crowns, and a house in Paris, which he rarely inhabited, spending most of his time at Fontainebleau, where he also had apartments. In the following year (1531) Primaticcio came. Born at Bologna in 1490, Francesco Primaticcio quitted his native city for Mantua at the age of thirty-five, attracted by the fame of Giulio Romano. There he worked for six years with great credit, and now came into France with all the prestige which could accrue from the fact that Giulio, unable to accept for himself the invitation which Francis had addressed to him, had nominated Primaticcio as his worthy representative. He was welcomed at Paris with all the honors due to his credentials. Francis named him prior of Bretigny, and *abbé* of St Martin de Troyes, two places which brought him in an annual income of eight thousand crowns; but he does not seem to have found active and immediate employment. Rosso, who, as a man of general cultivation, well-bred, well-mannered, of good figure and address, had rendered himself acceptable to the king, was already in possession of the title of *surintendant des bâtimens*. The arrival of Primaticcio seemed to threaten his supremacy, and it is conjectured that, in consequence of the difficulties which arose between them, Primaticcio was eventually despatched to Italy, under commission from the king, to take casts of the finest examples of ancient and modern sculpture, and to purchase other works of art.

The field was now left clear for Rosso (1531). Under his supervision were constructed the Galerie François I. in the Cour Ovale at Fontainebleau, and a portion of the Cour de la Fontaine, in which Charles V. and his suite were lodged in 1539. That either Primaticcio or Rosso were practically skilled as architects is doubtful. The province of art in which both specially distinguished themselves was purely that of decoration. Decorative painting and every class of ornamental work in relief, from surface patterns to statuettes, were familiar technic in the hands of both; and in this respect, by the introduction of methods of procedure and ornament common only in Italy at that date, they enlarged the boundaries and reunited the resources of French art. Their action on the construction of the buildings which they decorated was probably limited to a merely general dictation and control. Such portions of Fontainebleau as were in building during the rule of Rosso do not differ essentially from parts previously executed, and we shall probably be right in concluding that the legitimate credit due to him is simply that of having developed and extended changes which had already taken place in interior decoration and architectural detail, and of having thus carried forward the work of preparing and educating the national taste to relish the decisive revolution which was now inaugurated, and destined to be accomplished with the next reign.

For it is to the era inaugurated by the accession of Henri II. that we must look for a complete expression of change; and it is a significant fact that the works of this reign are signed. Ecouen speaks to us of Bullant, Anet and the Tuileries once bore witness to the talent of De Lorme, and the genius of Lescot is still acknowledged by the Louvre. Of these men we know not much indeed, but enough to individualize our conception of their character, and to make them appear to us not as names only, but as men.

This story ("GREEN PASTURES AND PICCADILLY"), being written partly in collaboration with an American author, is copyrighted both in this country and in England, and is printed in THE LIVING AGE *from Harper's Bazar, by arrangement with Harper & Brothers.*

GREEN PASTURES AND PICCADILLY.

BY WILLIAM BLACK,

AUTHOR OF "THE PRINCESS OF THULE," "THE ADVENTURES OF A PHAETON," ETC.,

In conjunction with an American writer.

[Entered according to Act of Congress, in the Year 1877, by HARPER & BROTHERS, in the Office of the Librarian of Congress, at Washington.]

CHAPTER XL.

A FLASH OF NEWS.

WE dragged a lengthening chain. As soon as we had left Niagara and its hotels and holiday-making, and plunged into that interminable forest-land that lies between Lakes Huron and Erie, one could have noticed that the gravity of our women-folk was visibly increased. Did they half expect, then, while they were idling about these show-places, some sudden summons which they could readily answer? Bell, at least, could have no such hope; but all the same, as this big and ornate car was quietly gliding away westward, in the direction of her future home, she was as sad as any of them.

What was the matter? It was a beautiful afternoon. The country through which we were passing was sufficiently cheerful; for this forest was not dark, gloomy, and monotonous like the Schwarzwald, but, on the contrary, bright, varied in hue, and broken up by innumerable clearances. Every few minutes the window next us became the frame of a pleasant little picture, — the sudden open space among the trees; a wooden house set amidst orchards in which the ruddy apples showed in the evening light; a drove of cattle homeward going along the rough road; tall, silver-gray stems of trees that had been left when the wood was burned down; and everywhere, in every available corner, maize, maize, maize.

"What is the matter?" says the German ex-lieutenant to his wife, who is gazing somewhat absently out of the window.

"I know," says Queen T., with a gentle smile. "She is thinking how she could ever make her way back through this perpetual forest if she were all by herself, and with no road to guide her. Fancy Bell wandering on day and night — always toward the east — toward her children. She might take some food from the country people, but she would not enter their houses; she would go on, day after day, night after night, until she got to the sea. And you want to know what she is thinking of now? I believe she is consumed with hatred of every thing lying westward of the River Mole, and that she considers the Pullman car a detestable invention. That is the pretty result of Colonel Sloane's ingenuity!"

It certainly was not fair to talk in this slighting fashion of poor old Five-Ace Jack, who was but recently dead, and who had done what he considered his best with such worldly possessions as Providence had allowed him to thieve and amass. But at this moment the lieutenant struck in.

"Oh, that is quite foolish!" he cried. "There is no longer any such thing as distance; it is only time. It is foolish to think of the distance between the Rocky Mountains and Surrey; it is only how many days; and you may as well be living in a pleasant car, and having good food and very capital beds, as in a hotel, while all the time you are travelling. And indeed," continued this young man, seriously addressing his wife, "there is very little difference of time either now. You want to speak to your children? You speak to them through the telegraph. It is an hour or two — it is nothing. In the morning you send them a message; you say, 'How do you do?' In the evening, as you sit down to dinner, you have the answer. What is that separation? It is nothing."

"I think," says Bell, with savage ferocity, but with tears springing to her eyes, "I will spend the whole of the first year's income of this wretched property in telegrams to the children. One might just as well be dead as living without them."

And if she was to derive any comfort from this reflection that the telegraph was a constant link of communication between herself and those young folks left behind in Surrey, she was not likely to be allowed to forget the fact for any length of time. Even out in this forest wilderness the most prominent feature of the smallest hamlet we passed was its telegraph posts and wires. Very plain, unpretending, picturesque hamlets these were, even in the ruddy glow now shining over the land. They consisted of a number of wooden shanties all set down in rectangular rows, the thoroughfares being exceedingly broad and bare, the whole place having an oddly improvised and temporary look, as if the houses and shops could in a few minutes be put on wheels and carried along to the next clearance in the forest. But what could even the smallest of these here-

to-day-and-gone-to-morrow-looking places want with such a multiplicity of telegraph wires?

That night the three women, having been bundled into the prettily decorated stateroom that had been secured for them, and being now doubtless fast asleep, saw nothing of the strange thing that occurred to us. Had Von Rosen gone mad, or had the phrase "stateroom" confused his fancies, that, looking out of the car window, he suddenly declared we were at sea? Rubbing his eyes — perhaps he had been dozing a bit — he insisted on it. Then he must needs hurry out to the little iron gangway at the end of the car to see if his senses were forsaking him.

Here, certainly, a strange sight was visible. We were no doubt standing on a railroad car; but all around us there was nothing but black and lapping water through which we were rapidly moving, propelled by some unknown power. And the blackness of this mysterious lake or sea was intensified by the flashing down on the waves of one or two distant lights that seemed to be high above any possible land. Then, as our eyes became accustomed to the darkness, lo! another phenomenon — a great black mass, like a portion of a city, moving after us through the night. We began to make it out at last. The bewildering lights ahead were two lofty beacons. We were crossing a lake, or a bit of a lake. The long train had been severed into lengths, and each portion of the huge serpent placed on a gigantic steam ferry-boat, which was taking us across the black waters. And when this night passage ceased, we scarcely knew whether we were on sea or on shore, whether on a boat or on a line of rail. But people began to talk about Detroit; and here undoubtedly was a railway station, to say nothing of a refreshment bar.

"I believe we have got into the States again," observed the lieutenant, thereby showing a knowledge of geography which was not surprising in a German.

Next morning our little party had most obviously improved in spirits. Perhaps there was some secret hope among the women-folk that they would have further news from England when they arrived at Chicago, though what good could come of that it was hard to say. Or perhaps they were delighted to find that they had suffered no discomfort at all in passing a night on board a railway train. They praised everything — the cleanness and comfort of the beds, the handiness of the lavatories, the civility of the attendants. There was no fatigue at all visible in their fresh and bright faces. And when they sat down to breakfast, it was quite clear that they meant to make it a comic breakfast, whereas breakfast in an American railway car is a serious business, to be conducted with circumspection and with due regard for contingencies. For one thing the hospitable board is not spacious; and with even the most smoothly going of cars there are occasional swayings which threaten peril to coffee-cups But the chief occasion for fear arises from the fact that your travelling American is a curious person, and insists on experimenting upon every possible form of food that the districts through which he is passing produce. Moreover, he has a sumptuous eye, and likes to have all these things spread out before him at once. No matter how simple the central dish may be — a bit of a prairie-chicken, for example, or a slice of pork — he must have it, perhaps merely for the delight of color, graced by a semi-circle of dishes containing varied and variously prepared vegetables. Now we never could get the most intelligent of negroes to understand that we were only plain country-folk, unaccustomed to such gorgeous displays and varieties of things, and not at all desirous of eating at one and the same time boiled beans, beet root in vinegar, green corn, squash, and sweet potatoes. Sambo would insist on our having all these things, and more, and could not be got to believe that we could get through breakfast without an assortment of boiled trout, pork and apple-sauce, and prairie-chicken. The consequence was that this overloaded small table not unfrequently reminded one or two of us of certain experiences in northern climes, when the most frugal banquet — down in that twilit saloon — was attended by the most awful anxiety.

"She pitches a good deal," said Bell, raising her cup so as to steady it the better; "the sea must be getting rougher."

"Madame Columbus," asked the lieutenant, "when shall we come in sight of land? The provisions will be running short soon. I have never seen people eat as these people eat: it is the fine air, is it not?"

"Mr. Von Rosen," said Lady Sylvia, "do you know that you can have Milwaukee lager-beer on board this ship?"

"Do I know?" said the young man, modestly. "Oh, yes, I know. I had some this morning at seven o'clock." And then he turned to his shocked wife: "I was

very thirsty, and I do not like that water of melted ice."

He would have explained further, but that his wife intimates that such excuses are unnecessary. She has got used to this kind of thing. Happily her children are now beyond the sphere of his evil example.

"Ah," said he, "this is all very poor and wretched as yet — this crossing of the American continent. I am a prophet. I can see the things that will come. Why have we not here the saloon that we have across the Atlantic — with a piano? I would sing you a song, Lady Sylvia."

"Indeed," said that lady, very sweetly, "you are very kind."

"But it is a long time ago since we used to have songs in our travelling. I can remember when we had to try a new piano every day — some of them very queer; but always, in any case, we had the guitar, and 'Woodstock Town' and 'The Flowers of the Forest' ——"

"And '*Prinz Eugen, der edle Ritter*,'" says Bell, in a suddenly deep and tragical voice, "'*wollt' dem Kaiser wiedrum krrrrrrrriegen Stadt und Festung Belga-rrrrrr-ad!*'"

"Ah, Bell," says Queen T., "do you remember that morning at Bourton-on-the-Hill?"

Did she remember that morning at Bourton-on-the-Hill! Did she remember that bunch of fiddlesticks! No doubt they were very pleased to get away from the small inn where they had had ham and eggs and whiskey for supper, and ham and eggs and tea for breakfast; but here, in this bountiful and beneficent land, flowing over with broiled bluefish, Carolina widgeon, marrow squash, and Lima beans, what was the use of thinking about Bourton-on-the-Hill and its belongings? I do not believe we were charged more than a shilling per head for our lodging in that Worcestershire hostelry; here we were in a country where we could pay, if we chose, a couple of shillings extra for having a bottle of wine iced. And, if it came to that, what fresher morning could we have had anywhere than this that now shone all around us? We dragged these nostalgic persons out on to the pleasant little iron balcony at the end of the car. There had been a good deal of rain for some time before, so there was little dust. And what could be brighter and pleasanter than these fair, blue skies, and the green woods, and the sweet, cool winds that blew about and tempered the heat of the sun? We seemed to be rolling onward through a perpetual forest, along a pathway of flowers. Slowly as the train went, we could not quite make out these tall blossoms by the side of the track, except to guess that the yellow blooms were some sort of marigold or sunflower, and the purple ones probably a valerian, while the rich tones of brownish-red that occurred among the green were doubtless those of some kind of rumex. And all through this forest country were visible the symptoms of a busy and shifty industry. Clearing followed clearing, with its inclosures of split rails to keep the cattle from wandering; with its stock of felled timber close to the house; and with, everywhere, the golden yellow pumpkins gleaming in the sunlight between the rows of the gray-green maize.

"What a lonely life these people must lead!" said Lady Sylvia, as we stood there.

"Yes, indeed," responded her monitress. "They are pretty nearly as far removed from telegraphs and newspapers and neighbors as we are in Surrey. But no doubt they are content — as we might be, if we had any sense. But if the newspaper is ten minutes late, or the fire not quite bright in the breakfast-room ——"

"Or the temper of the mistress of the house," says another voice, "of such a demoniacal complexion that the very mice are afraid of her ——"

"Then, no doubt, we think we are the most injured beings on earth. Oh, by-the-way, Lady Sylvia, how did your dado of Indian matting look?"

This was a sudden change; and, strangely enough, Lady Sylvia seemed rather embarrassed as she answered.

"I think it turned out very well," said she, meekly.

"I suppose some of your guests were rather surprised," is the next remark.

"Perhaps so," answers the young wife, evasively. "You know we never have given many dinner-parties in Piccadilly. I — I think it is so much better for my husband to get into the country whenever he can get away from the House."

"Oh yes, no doubt," says Queen T., with much simplicity. "No doubt. But you know you are very singular in your tastes, Lady Sylvia. I don't know many women who would spend the season in Surrey if they had the chance of spending it in Piccadilly. And what did you say those flowers were?"

Our attention was soon to be called away from the flowers. The forest become scantier and scantier — finally it disappeared altogether. In its place we

found a succession of low and smooth sand-hills, of a brilliant yellowish-brown in this warm sunlight, and dotted here and there with a few scrubby bushes. This was rather an odd thing to find in the midst of a forest, and we were regarding these low-lying mounds with some interest when, suddenly, they dipped. And lo! in the dip a dark blue line, and that the line of the horizon. The sea! — we cried. Who can imagine the surprise and delight of finding this vast plain of water before the eyes, after the perpetual succession of tree-stems that had confronted us since the previous morning? And surely this blue plain was indeed the sea; for far away we could pick out large schooners apparently hovering in the white light, and nearer at hand were smart little yachts, with the sunlight on their sails.

"Madame Columbus," cried the lieutenant, "have we crossed the continent already? Is it the Pacific out there?"

"Why, you know," says the great geographer, with a curtness unworthy of her historic name and fame, "it is Lake Michigan. It is a mere pond. It is only about as long as from London to Carlisle; and about as broad as — let me see — as Scotland, from the Clyde to the Forth."

It was a beautiful sight, however insignificant the size of the lake may have been. Nothing could have been more intensely blue than the far horizon line, just over those smooth and sunlit hills. No doubt, had we been on a greater height we should have caught the peculiar green color of the water. Any one who has unexpectedly come in view of the sea in driving over a high-lying country — say in crossing the high moors between Launceston and Boscastle — must have been startled by the height of the suddenly revealed horizon-line. It seems to jump up to meet him like the pavement in the story of the bemuddled person. But down here on this low level we had necessarily a low horizon-line; and what we lost in intrinsic color we gained in that deep reflected blue that was all the stronger by reason of the yellow glow of the sand-hills.

We got into Michigan City. We were offered newspapers. We refused these — for should we not have plenty of time in Chicago to read not only the newspapers, from which we expected nothing, but also our letters from England, from which we expected everything? As it turned out, there was nothing at all of importance in our letters; whereas, if we had taken these newspapers, we could not fail to have noticed the brief telegraphic announcement — which had been sent all over the commercial world — of the suspension of the well-known firm of Balfour, Skinner, Green, & Co., liabilities £500,000. In happy ignorance we travelled on.

It was about midday, after skirting the southern shores of Lake Michigan through a curiously swampy country, that we entered Chicago, and drove to the very biggest of its big hotels.

From The Saturday Review.

INTERESTING PEOPLE.

WHENEVER we see the term "interesting" applied to a character it excites an especial curiosity. Perhaps there are few epithets so flattering; but when we attempt to define it we find it impossible to treat the subject apart from oneself, to make it other than a personal question; we cannot say what is interesting in the abstract apart from what is interesting to us. Of course, indeed, it is this alliance between the interesting and the interested that gives the epithet its meaning and constitutes the charm. We can define a sensible, an amiable, a generous person without our individuality being concerned; but if we set about a definition of the interesting, assuming the same conditions, we are pulled up at once by the consciousness of the standard being different according as we treat the question in the general or from our own particular point of view. If we would say what sort of persons are interesting to the world at large we assume a cynical spirit; the abstract interesting person is another creature altogether from the man who has the honor to interest us. We invest him with the touches of the sentimental, the lackadaisical, the Byronic, the affected, the sham and illusory, to fit him as the ideal of the common run of undiscerning, easily deceived men and women; but, if we are interested, it must needs be by some choice special grace of nature which it implies some fellow-feeling on our part to detect and bring into prominence. Our highest sympathies may, however, be awakened long before we know why; and the question what it is in some men that separates them by this marked distinction from their fellows may cost one some expense of thought while the interest excited is at its strongest.

We have said that personal considerations come in first in dealing with this question. People may indeed think a

man interesting without any prospect of personal experience of his qualities; but, when driven to justify their preference, they will find it to rest on a belief of mutual affinity; the interesting person is supposed to have an exceptional share of sympathy, not for the world at large probably, but for those worthy of his sympathy. He must be capable of strong human likings and — as inseparable from strong likings — strong dislikes. The interesting person that pleases us is a marked character, but differs from the character often so described by being not easy to read. If there is any one point essential to the interesting person, it is a touch of mystery. Nobody is really interesting who does not stimulate curiosity, whom we think we know all round, who leaves no room for guessing. There must be something supposed to exist that is not altogether of a piece with appearances. Nobody is interesting who can be interpreted by general laws, who needs no tenderness of insight, who awakens no speculation. The difference between those who excite strong personal feeling — we are not speaking now of close personal relations — and those who are generally esteemed for their important or great qualities lies in some such point as this. The latter do not excite the imagination; they do not appeal to that faculty whose exercise gives the greatest pleasure and sense of intellectual power to its possessor. We may respect and admire a man without being drawn towards him; we are drawn towards the man of interesting qualities by the suspicion of some latent attraction over and above his open and definable worth and value, which attraction our penetration is to discover; for of course the more the subject of our inquiry and observation gives us to do — the more he exercises our acuteness — the larger space he fills in our minds. Nor does the interesting character maintain its attraction if it becomes, as it were, independent of our indulgence. We must have our points of superiority; our award must go for something. The topmost point of success has its advantages, but, as a station to pose upon, it does not specially interest. We shall find in all fiction that success detracts from this quality. The interesting characters are those to whom the reader is kinder than their surroundings. As a hero, who so interesting as Hamlet? not only because from beginning to end he is a mystery, but because the reader is forever excusing, explaining, making discoveries. In the absence of this particular quality, Walter Scott, great as he is, does not present many examples of the "interesting person;" the Master of Ravenswood is the almost too obvious, and as such commonplace, exception. Most beautiful touches of romantic interest there are in his personages, but not, we should say, in his leading characters. Not, of course, that we are not interested, but that our praise expresses itself in other epithets. Wherever principles and temperament are in strong antagonism, there the novelist at least aims at the quality we are speaking of, appointing the reader arbiter in the conflict. It is this that gives misfortune its value in fiction, especially the misfortune of being misunderstood and undervalued. The reader is brought into a particular and close relation with the sufferer, and sees further than his blind companions of the story.

In pronouncing a person to be interesting, we are claiming more comprehension of, and insight into, his character than in attributing to him positive qualities. In fact, there is an assumption, a certain claim of equality, in conferring the title. To be a fit subject for it, a man must have more in him than he shows to everybody; we detect, or at least suspect, some striking or amiable contradiction to the outside tone and bearing. Persons of weak or excitable minds are constantly finding people interesting through mere mistake and blundering. We would, therefore, take no one's judgment on this point whom we consider to be himself wholly without this delicate quality. The one purpose and aim of affectation is to excite interest, and undiscerning people who cannot distinguish between real and sham respond to the appeal; but if there is one thing more than another essential to the genuine gift, it is truth and nature. Many natural people are not interesting, but no one who is not natural can be interesting to sensible people. Not, of course, that there may not be a side of concealment or display, for interest attaches to complex characters; but it is only where we see nature assert itself than we are interested. Every contradiction between the manner and bearing of the man, the character borne before the world, and his inner life, excites an interest, and where this contradiction is revealed in an unexpected devotion to the simpler duties and affections, the person who shows it is eminently interesting. Biography reveals these contrasts. Poor Charles Lamb, so airy and witty in speech, known to the world even as a boon companion, with his hidden grief and his life-

long sacrifice which few would have undertaken and fewer still could have endured to the end, is an example; and Cowper, in the strange contrast between his humor and his gloom, between his domestic winning gentleness of character and the harsh severity of his graver verse, was pre-eminently interesting to all with whom he was brought in contact. There is another contrast which is equally interesting, especially to minds with a strong bent of their own, and ever in search of illustrations on views and points on which their own faculties are exercised. We do not suppose, for example, that Lord Wellesley was abstractedly a case specially to our purpose; but Macaulay writes of him, "I am particularly curious, and always was, to know him. He has made a splendid figure in history, and his weaknesses, though they make his character less worthy of respect, make it more interesting as a study." Going on to give a description of the person of that distinguished man, he says, "Such a blooming old swain I never saw; hair combed with exquisite nicety, a waistcoat of driven snow, and a star and garter put on with care and skill." Perhaps, though this does not answer to any ideal of the interesting, there is something to our point in the notion of a mind occupied with statesmanship linked to a person in the disguise of a *petit maître*. But, if weaknesses even of the smaller kind may add to interest, they must be clear of moral taint. The "greatest, wisest, meanest of mankind," if his greatness and wisdom did not make him interesting, would not be rendered so by his meanness except as a psychological study.

The biography of Macaulay himself shows him to the outside world in an interesting light, with all the elements of the unexpected. While he shone before the world in one character, he had an inner life which no stranger could have attributed to him, and this inner life was, as it seems, the more intense and engrossing of the two. To ill-natured people, even to persons with nothing but his public aspect and circumstances to go by, his brilliancy, versatility, and domineering powers of speech might seem to represent the whole man; and these qualities do not make a man interesting; in fact, he was too much of a prodigy for the epithet to occur to anybody as descriptive; still no reader of his biography can withhold it. There are men idolized in their families, and dull or fantastic to the world at large, who are properly interesting to nobody, the element of nature, pure and unalloyed, being wanting; but Macaulay's letters to his sisters, and the delightful image they raise of his home life, placed side by side with the blaze of his public fame, constitute him a specimen example. On this point literary people prove themselves no better judges, invested with no keener discernment, than common folks. It is amusing to read, along with these domestic revelations, Miss Martineau's summary condemnation of the man as author, politician, and social star. To be sure, her book makes it apparent that nobody was very interesting to Miss Martineau but herself and those to whom she was interesting. We are quite open to Macaulay's faults, so we need not produce here the long string of offences, failures, and errors with which she leads up to her conclusion: "My own impression is, and always was, that the cause of the defect is constitutional. The evidence seems to indicate that he wants heart. He appears to be wholly unaware of this deficiency; and the superficial fervor which suns over his disclosures probably deceives himself, as it deceives a good many other people; and he may really believe that he has a heart. To those who do not hold this key to the interpretation of his career it must be a very mysterious thing . . . that he should never have achieved any complete success." People in the turmoil of literary work — its hopes and fears, its vanities and small transient triumphs — are not at all in a condition to detect the hidden and to see behind the curtain of manner. However, we do not know whether even the testimony of Macaulay's home life would have influenced the exponent of positivism in her verdict.

In all notable public examples the element of mystery carries it over everything else in exciting and sustaining interest. We see this conspicuously in Swift, so profoundly interesting to the last century; though in his case the mystery did not admit of resolution into contradictory excellencies. Descending to the domestic and social standards of this quality, we should say that in family life those are most interesting who are most fully known to the observer, whose intricacies of character have been a long study; while in social life it is the new and unfamiliar, which has to be guessed at, that gives the most amusing and exciting exercise to this vein of observation. The lovers of new acquaintance are always expecting to make discoveries of more than meets the eye, of depths unsuspected by the careless and indiffer-

ent; but they are impatient and often miss what they are looking for. The really interesting character grows in interest, and only fully reveals itself to the constant sympathy of a kindred nature.

We think it may be observed that the epithet is oftener applied to men than to women, which may be explained by the fact that women, in their easy, unscientific way, are much oftener students of character than men; and, as men play the more conspicuous part in the world, they are naturally the objects of this study. But also it may be that mystery, if we may so apply the word, belongs rather to man's organization. Those who do not take much pains in the choice of their epithets, but use those in vogue, will call a woman charming where they would call a man interesting; both epithets connect the object of admiration with the admirer. The man who calls a woman charming has both felt her charm and believes himself to be the object of an intention to please. The praise of moral and intellectual excellence may be bestowed without this condition, but there is always a subtle affinity between the interesting man and the person interested, between the charming woman and the person charmed.

From The American Journal of Science.

THE CHEMICAL COMPOSITION OF THE FLESH OF THE HALIBUT.

THE halibut (*Hippoglossus americanus*, Gill), which abounds in the waters of the Atlantic, as far north as Newfoundland and as far south at Cape Hatteras, is highly valued as food in the United States. The flesh is of a fine white color, is delicate and tender, and resembles that of the whiting (*Merlangus vulgaris*). The fresh flesh of the halibut has been analyzed by Chittenden, and he gives in his paper the results of his examination side by side with those of Payen, who investigated the composition of the flesh of the whiting. They are as follows: —

	Halibut.	Whiting.
Water	82·87	82·95
Solid constituents	17·12	17·05
Ash	1·08	1·08
Fatty matter	1·26	0·38
Nitrogen	2·01	2·41

The flesh of the American fish, when dried at 100° C., was found to consist of —

Carbon	50·38
Hydrogen	7·43
Nitrogen	11·68
Oxygen	6·35
Ash	24·16
	100·00

and of the above constituents 7.11 per cent. were present in the form of fatty matter. The ash of the flesh of this fish is composed of —

Silicic acid	0·32
Chlorine	11·11
Carbonic acid	1·13
Sulphuric acid	1·30
Phosphoric acid	34·36
Iron	0·19
Lime	0·15
Magnesia	2·43
Potash	37·07
Soda	12·22
Lithia	trace.
	100·28

Some considerable part of the alkaline metals which the author gives as oxides in the above percentage numbers must in reality be present in the form of *chlorides*, combined with the 11·11 per cent. of chlorine, and the total constituents found must therefore fall short of the total above given. In fact, the 11·11 per cent. of chlorine has, so to speak, been left out in the cold, uncombined, and must take the place of oxygen in these calculated results; this will reduce the total considerably. More than 70 per cent. of the constituents of the ash, according to the author's mode of regarding them, consists of phosphoric acid and potash.